

Biological Resources Technical Report

1.0 Introduction

The Brightline West (formerly DesertXpress Enterprises, LLC XpressWest) High-Speed Train Project (Project) entails construction and operation of a high-speed passenger train system between Apple Valley, and Las Vegas, Nevada. The Project was originally evaluated in the following documents (collectively referenced as the DesertXpress Environmental Impact Statement [EIS]):

- *March 2009 Draft Environmental Impact Statement and 4(f) Evaluation for the proposed DesertXpress High-Speed Passenger Train (DesertXpress DEIS)*
- *April 2010 Supplemental Draft Environmental Impact Statement and 4(f) Evaluation for the proposed DesertXpress High-Speed Passenger Train (DesertXpress SEIS)*
- *March 2011 Final Environmental Impact Statement and 4(f) Evaluation for the proposed DesertXpress High-Speed Passenger Train Victorville, California to Las Vegas, Nevada (DesertXpress FEIS)*

The Federal Railroad Administration (FRA) issued the Record of Decision DesertXpress High-Speed Passenger Train (DesertXpress ROD) in July 2011. In September 2020, a NEPA re-evaluation (September 2020 Reevaluation) was completed and addressed Project changes that had occurred since completion of the ROD in 2011. The footprint evaluated in the September 2020 Reevaluation is referred to as the modified Project 2020. Since then, the Project design has progressed, and additional changes have occurred that both add to and remove the footprint evaluated in the September 2020 Reevaluation. These design changes have resulted in what is referred to as the modified Project 2022 footprint.

The 2022 Project modifications include mainline changes throughout the entire Project alignment (modified Project 2022 footprint [Mainline]) and changes to the Vehicle Maintenance Facility (VMF) location (modified Project 2022 footprint [Sloan VMF]). In the Summary chapter, the overall effects with the modified Project 2022 footprint are compared to what was previously evaluated in the September 2020 Reevaluation and the EIS.

2.0 Regulatory Updates

The regulatory environment for biological resources is described in detail in Section 3.14.1.1-3 of the DesertXpress DEIS and Section 3.14.1.2 of the DesertXpress FEIS. Land use designations and the regulatory status of each species evaluated in the DesertXpress EIS were verified during this analysis and any changes are included in the applicable section of this report. Below are changes to the regulatory environment since the issuance of the DesertXpress ROD and completion of the September 2020 Reevaluation.

On September 14, 2016, the Bureau of Land Management (BLM) issued the ROD for the Desert Renewable Energy Conservation Plan (DRECP), which amended the California Desert Conservation Area (CDCA) Plan, the Bishop Resource Management Plan (RMP), and the Bakersfield RMP in the Mojave and Colorado/Sonoran Desert regions of southern California. The DRECP covers 22.5 million acres in seven California counties—Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego—and includes 10.8 million acres of public lands administered by the BLM. The DRECP identifies priority areas for renewable energy development while setting aside areas for conservation and recreation. The plan also designated new Areas of Critical Environmental Concern (ACEC), as part of the BLM's Land Use Plan Amendment for the DRECP. The modified

Project 2022 footprint (Mainline) is located within the DRECP Plan Area and intersects with five new ACECs (discussed in Section 4.2.6).

On August 27, 2019, the U.S. Fish and Wildlife Service (USFWS) published three final rules that change the implementation of the Endangered Species Act (ESA) (16 United States Code [U.S.C.] § 1531 *et. seq.*). The final rules apply to Section 4 (listing and de-listing of endangered and threatened species; effective September 26, 2019) and Section 7 (consultation with Federal agencies; effective October 28, 2019) of the ESA.

Following shortly after the September 2020 Reevaluation, on May 6, 2021 the USFWS provided concurrence that re-initiation of formal consultation was unnecessary because none of the proposed changes met the re-initiation criteria at 50 Code of Federal Regulations (CFR) 402.16. The USFWS also acknowledged that Southern California Edison would apply to the Bureau of Land Management (BLM) for separate authorization for the construction of the two electrical substations and transmission lines that would supply power to the rail line. In addition, the USFWS issued revised desert tortoise protective measures for the Project's Biological Opinion (FWS-SB-20B0244-21TA0969) based on the modified Project 2020 footprint evaluated in the September 2020 Reevaluation. These revised protective measures were incorporated into the September 2020 Reevaluation. FRA determined re-initiation of formal consultation under Section 7 was unnecessary because impacts on species listed as threatened or endangered and critical habitat were substantially reduced, and no effects to listed species or critical habitat would result from the Project modifications that were not previously considered. On September 1, 2023, USFWS concurred that re-initiation of formal consultation under Section 7 was not required for the Project.

3.0 Methodology for Biological Field Surveys – Modified Project 2022 Footprint (Mainline)

3.1 Vegetation Mapping

For the DesertXpress DEIS, the Project footprint, including associated buffers to evaluated alternatives, was mapped during 2006-2010 field surveys. Most of the modified Project 2022 footprint (Mainline) is included in the area that was mapped as part of associated buffers. The Ivanpah substation and utility corridor component (Ivanpah) of the modified Project 2022 footprint (Mainline) was not included in the 2006-2020 field surveys, so ICF biologists conducted reconnaissance-level vegetation mapping of the Ivanpah footprint on April 20 and 21, 2022, during focused rare plant surveys, following the methods described in Section 3.14.2.3 of the DesertXpress DEIS. For consistency, vegetation in the area was identified using the same classification scheme (Mojave Desert Ecosystem Program: Central Mojave Vegetation Database (USGS 2004)). Details of the weather conditions during the survey are shown in Table 3.1-1.

Since the remainder of the modified Project 2022 footprint (Mainline) footprint is immediately adjacent to areas previously evaluated during the 2019 field reconnaissance, updated vegetation mapping was completed through review of site photographs and associated desktop aerial imagery interpretation.

As part of updating the vegetation mapping within the modified Project 2022 footprint (Mainline), the CDFW California Natural Diversity Database (CNDDB) list of sensitive vegetation community occurrences was refreshed and included in Attachment H1.

Table 3.1-1 Weather Conditions during Ivanpah Footprint Vegetation Mapping

Dates of Survey	Personnel	Weather Conditions	Approximate Temperatures During Survey
04/20/22	<ul style="list-style-type: none"> • Brian Cropper • Alix Fowler • Shawn Johnston 	Clear with winds from 1–15 miles per hour (mph)	78–84 degrees (°) Fahrenheit (F)
04/21/22	<ul style="list-style-type: none"> • Brian Cropper • Alix Fowler • Shawn Johnston 	Clear with winds from 10–20 mph	64°F–80°F
04/26/23	<ul style="list-style-type: none"> • Alix Fowler • Garrett Moss • Nick Sutter 	Clear with winds from 4–8 mph	60°F–70°F
04/27/23	<ul style="list-style-type: none"> • Alix Fowler • Garrett Moss • Nick Sutter 	Clear with winds from 4–8 mph	60°F–70°F
04/28/23	<ul style="list-style-type: none"> • Alix Fowler • Garrett Moss • Nick Sutter 	Clear with winds from 4–8 mph	60°F–70°F

3.2 Special-Status Plants

Through coordination with the BLM Needles Field Office, the District wildlife biologist (Justin Saiz) and Project Manager (Amanda Moore) requested a floristic plant survey and a cacti and yucca population estimate throughout the Ivanpah Utility Corridor component of the modified Project 2022 footprint (Mainline) (Attachment H2). Focused botanical surveys were not conducted elsewhere along the modified Project 2022 footprint (Mainline).

The Ivanpah Utility Corridor is near the Ivanpah Solar Electric Generating System (SEGS), approximately 8 miles southwest of Primm, Nevada, in San Bernardino County, California. As part of the Ivanpah SEGS permitting process, the majority of the Ivanpah Utility Corridor was extensively surveyed in 2007 and 2008, except for the portion along Yates Well Road. The Ivanpah SEGS surveys identified six species of rare plants (based on the California Native Plant Society’s (CNPS) California Rare Plant Rankings [CRPR]) within the surveyed areas, which were submitted to the CNDDDB. This Ivanpah SEGS survey report is included as an attachment to the 2022 Ivanpah Utility Corridor focused plant surveys, discussed further below.

Within 3 miles of the Ivanpah footprint, ICF conducted an additional search of CNDDDB records (Attachment H1), CalFlora’s observation database for species on CNPS’s Inventory of Rare and Endangered Plants (Attachment H3), and USFWS Information for Planning and Consultation (IPaC) (no results) and identified an additional nine species with potential to occur within the Ivanpah area. Of the 15 species identified, only two of the species, Rusby’s desert-mallow (*Sphaeralcea rusbyi* var. *eremicola*) and polished blazing star (*Mentzelia polita*), are listed as sensitive by the BLM Needles Field Office. These two species were identified as the target species for the Ivanpah special-status plant surveys. The appropriate survey window is March and April, which is also suitable for the yucca and cacti survey.

On April 14, 2022, ICF biologists Alexandra Fowler and Matt Stewart scouted the Ivanpah area to determine the appropriate timing for floral surveys. Occurrences of Rusby's desert-mallow and polished blazing star recorded in the CNDDDB within 3 miles of the Project area (which correspond to individuals identified during the 2007 and 2008 rare plant surveys for Ivanpah SEGs) were visited to determine their phenology. After confirmation of the appropriate timing, the focused survey was conducted on April 20 and 21, 2022, using the personnel and methods described above in Section 3.1 and also in the report (Attachment H4). During the vegetation mapping and special-status plant survey in 2022, estimates and/or direct counts of all cacti and yucca species with the Ivanpah Utility Corridor were also recorded.

In September 2022, BLM Needles identified the need to perform additional special-status plant surveys in order to comply with *Survey Protocols Required for NEPA/ESA Compliance for BLM Special-Status Plant Species*, in conformance with subsequent BLM Instruction Memorandum (IM) 2009-026 and BLM Informational Bulletin (IB) 2010-012. Specifically, this included performing two spring surveys and one fall survey to support BLM decisions on Project components to be located on public lands. The first spring survey was performed in April 2022, and the second was performed in April 2023. Based on the reference data review of potential species, the blooming period and habitat review for those species, and the previously conducted spring surveys, fall surveys were not warranted. To document this decision, a *Fall Rare Plant Survey Exemption Justification* (ICF 2022; Attachment H5) was provided to the BLM Needles Field Office for the Ivanpah Utility Corridor, for which the BLM Project Manager concurred with on October 26, 2022 (Attachment H5).

On April 5, 2023, ICF biologist Amy Anderson scouted the Ivanpah area to determine the appropriate timing for floral surveys. Occurrences of Rusby's desert-mallow and polished blazing star recorded in the CNDDDB within 3 miles of the Project area (which correspond to individuals identified during the 2007 and 2008 rare plant surveys for Ivanpah SEGs) were visited to determine their phenology. After confirmation of the appropriate timing, based on phenology and email correspondence with BLM (Attachment H2), the focused survey was conducted from April 26 through 28, 2023, using the personnel and methods described above in Section 3.1 and also in the report (Attachment H4). In addition to the 2022 special-status plant survey, cacti or yucca species were recorded.

3.3 Special-Status Wildlife

An evaluation was conducted where the modified Project 2022 (Mainline) footprint could provide suitable habitat for special-status wildlife; however, focused or protocol-level surveys for special-status wildlife were not conducted within the modified Project 2022 footprint (Mainline). Based on the modified Project 2022 footprint (Mainline), a query of the CNDDDB (Attachment H6) and the USFWS IPaC (Attachment H7) was conducted for a list of federally designated critical habitats and federally listed wildlife species within the modified Project 2022 footprint (Mainline) and vicinity.

Several additional special-status wildlife species and resources were evaluated for suitable habitat within the modified Project 2022 footprint (Mainline) but did not have focused or protocol-level surveys conducted. These include the following: burrowing owl, Mojave fringe-toed lizard, Clark County Habitat Conservation Plan-covered reptile species, banded Gila monster, roosting bats, American badger, desert bighorn sheep, nesting raptors, migratory birds, Joshua tree, and wildlife movement corridors.

3.3.1 Desert Tortoise (Threatened)

The Mojave population of the desert tortoise is federally and California state-listed as a threatened species. In Nevada, desert tortoises are classified as a state protected and threatened species. This species is a covered species under the West Mojave Plan, which encompasses approximately 9.4 million acres of public land managed by the BLM.

Based on USFWS and CDFW consultation from 2007 to 2011, no desert tortoise surveys were required within the Interstate (I)-15 freeway right of way (ROW). However, the Preferred Alternative included 29 drainage crossings under the I-15 freeway that were surveyed for desert tortoise in 2007. The results of the survey were positive for desert tortoise signs and were included in the BA. In Nevada, it was determined that all areas outside the existing I-15 freeway ROW and outside the urbanized development in Primm, Jean, and Las Vegas Metropolitan area were occupied desert tortoise habitat. Tortoise surveys were not required in Nevada as part of the DesertXpress EIS and ESA Section 7 process.

While no focused surveys were conducted as part of the habitat assessment, the vegetation mapping (described above) was conducted by biologists that are experienced in identifying desert tortoise signs and habitat. Focused surveys were not completed because of the following considerations: the existing BO calculated take and prescribed mitigation requirements and suitable habitat will be considered occupied.

3.3.2 Southwestern Willow Flycatcher (endangered), Least Bell's Vireo (Endangered), and Western Yellow-Billed Cuckoo (Threatened)

The southwestern willow flycatcher and least Bell's vireo are Federally and California state-listed as endangered species. The western, yellow-billed cuckoo is Federally listed as threatened and California state-listed as an endangered species. The modified Project footprint 2022 (Mainline) does not occur within suitable habitat or designated critical habitat for these three species.

3.3.3 Mohave Ground Squirrel (Threatened)

This species is a state-listed threatened species and a BLM Sensitive species. This species is a covered species under the West Mojave Plan. Because of its BLM status, the habitat for this species was evaluated within the modified Project 2022 footprint (Mainline). Utilizing the DRECP Mohave ground squirrel range map, a qualified biologist determined the amount of suitable habitat via desktop analysis using the methods described in Section 3.14.2.1 of the 2011 DesertXpress FEIS.

4.0 Effects Analysis for Biological Resources – Modified Project 2022 Footprint (Mainline)

For this Reevaluation, the methodology described in Section 3.14.2.2 of the DesertXpress DEIS and Section 3.14.2 of the DesertXpress SEIS were used to evaluate impacts of the modified Project 2022 (Mainline) on biological resources. Similarly, the thresholds for determining impacts on vegetation and wildlife from Section 3.14.4.2 of the DesertXpress DEIS were used to evaluate effects from the modified Project 2022 footprint (Mainline). The following sections evaluate biological resource impacts for the modified Project 2022 footprint (Mainline).

4.1 Vegetation Mapping

The 2020 field survey of the modified Project 2020 footprint added a “Disturbed” classification to Creosote Bush Shrubland and Saltbush Complex communities throughout Segment 1 through Segment 6 within the I-15 freeway corridor. This classification remained for 2022 vegetation mapping. The characteristic features described in Table 3.14-1 of the DesertXpress DEIS and Table 2 of the Special-Status Plant Survey Report for Segment 4C (ICF 2010) for all vegetation types were reviewed and found to be consistent with the vegetation types mapped within the modified Project 2022 footprint (Mainline). Table 4.1-1 shows the overall impacts (permanent and temporary impacts combined) on vegetation communities within the modified Project 2022 (Mainline) footprint. Table 4.1-2 and Table 4.1-3 separate the permanent and temporary impacts associated with the modified Project footprint.

Table 4.1-1 Modified Project 2022 Footprint (Mainline) Overall Vegetation Impacts (acres)

Vegetation Type	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total ²
Barren/Developed	343.6	230.6	265.7	91.1	310.3	118.1	1,359.5
Blackbrush Shrubland	–	–	10.4	1.1	–	–	11.5
Creosote Bush Shrubland	106.7	13.8	174.4	86.7	282.3	56.7	720.6
Disturbed Creosote Bush Shrubland	2.0	19.1	19.1	1.6	–	0.3	42.1
Desert Wash Scrub	–	5.9	8.5	5.7	–	–	20.1
Joshua Tree Wooded Shrubland ¹	–	–	20.2	–	–	–	20.2
Mesquite Shrubland	–	–	1.7	0.4	–	–	2.0
Mojave Mixed Woody Scrub	–	–	5.3	19.2	–	–	24.5
Ruderal	1.3	–	–	–	–	0.8	2.1
Saltbush Complex	–	–	16.4	–	–	–	16.4
Disturbed Saltbush Complex	3.3	3.6	6.0	–	–	6.9	19.8
Sparse Vegetation	–	14.0	0.5	–	–	–	14.5
Total per Segment ²	456.9	286.9	528.2	205.7	592.7	182.8	2,253.1

¹ Sensitive Vegetation Community

² Totals generated prior to rounding and therefore may not add precisely.

Table 4.1-2 Modified Project 2022 Footprint (Mainline) Permanent Vegetation Impacts (acres)

Vegetation Type	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total ²
Barren/Developed	285.9	9.0	15.4	61.7	293	58.2	723.3
Blackbrush Shrubland	–	–	1.6	–	–	–	1.6
Creosote Bush Shrubland	64.0	0.2	17.3	59.8	102.9	24.8	269
Disturbed Creosote Bush Shrubland	–	–	5.6	1.6	–	0.1	7.3
Desert Wash Scrub	–	–	1.4	–	–	–	1.4
Joshua Tree Wooded Shrubland ¹	–	–	4.9	–	–	–	4.9
Mojave Mixed Woody Scrub	–	–	0.1	–	–	–	0.1
Ruderal	1.3	–	–	–	–	0.1	1.4
Saltbush Complex	–	–	0.3	–	–	–	0.3
Disturbed Saltbush Complex	1.5	0.2	–	–	–	–	1.7
Total per Segment ²	352.7	9.4	46.7	123.1	395.9	83.3	1,011.0

¹ Sensitive Vegetation Community² Totals generated prior to rounding and therefore may not add precisely.**Table 4.1-3 Modified Project 2022 Footprint (Mainline) Temporary Vegetation Impacts (acres)**

Vegetation Type	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total ²
Barren/Developed	57.6	221.6	250.3	29.4	17.3	59.9	636.2
Blackbrush Shrubland	–	–	8.8	1.1	–	–	9.9
Creosote Bush Shrubland	42.7	13.6	157.1	26.8	179.4	31.9	451.6
Disturbed Creosote Bush Shrubland	2.0	19.1	13.4	–	–	0.2	34.7
Desert Wash Scrub	–	5.9	7.1	5.7	–	–	18.7
Joshua Tree Wooded Shrubland ¹	–	–	15.3	–	–	–	15.3
Mesquite Shrubland	–	–	1.7	0.4	–	–	2.0
Mojave Mixed Woody Scrub	–	–	5.2	19.2	–	–	24.4
Ruderal	–	–	–	–	–	0.6	0.6
Saltbush Complex	–	–	16.1	–	–	–	16.1
Disturbed Saltbush Complex	1.8	3.4	6.0	–	–	6.9	18.0
Sparse Vegetation	–	14.0	0.5	–	–	–	14.5
Total per Segment ²	104.2	277.5	481.5	82.5	196.8	99.6	1,242.1

¹ Sensitive Vegetation Community² Totals generated prior to rounding and therefore may not add precisely.

4.2 Environmental Consequences

4.2.1 Introduction or Spread of Invasive, Non-Native Weed Species Into Natural Vegetation Communities

The effects related to the introduction and spread of invasive, non-native weed species, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). The modified Project 2022 Mainline could introduce or spread invasive, non-native weed species into natural vegetation communities within the site. The implementation of Mitigation Measure BIO-4 (avoid dispersal) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects from noxious weeds.

4.2.2 Loss of or Damage to Native Vegetation Communities

The effects related to the loss of or damage to native vegetation communities, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Acreages of native vegetation communities that would be permanently or temporarily affected by the alignments, stations, and operations and maintenance facilities (excluding Sloan VMF) are presented in Table 4.2-1. Based on the vegetation mapping, the modified Project 2022 footprint (Mainline) would permanently convert approximately 286 acres and temporarily affect approximately 591 acres of native vegetation communities. Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), BIO-18 (Nevada compensatory mitigation), and BIO-18 (California compensatory mitigation) from the DesertXpress EIS (restated below) would be implemented to avoid, minimize, or mitigate adverse effects from loss of or damage to native vegetation communities.

Table 4.2-1 shows total vegetation impacts, by impact type, for the modified Project 2022 footprint (Mainline).

Table 4.2-1 Native Vegetation Community Impacts (acres)

Biological Resources	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total ²
Native Vegetation Communities ¹ – Permanent Impact	65.5	0.4	31.2	61.4	102.9	24.9	286.3
Native Vegetation Communities – Temporary Impact	46.5	42.0	230.7	53.2	179.4	39	590.7

¹ Native Vegetation Communities include: Blackbrush Shrubland, Creosote Bush Shrubland, Disturbed Creosote Bush Shrubland, Desert Wash Scrub, Joshua Tree Wooded Shrubland, Mesquite Shrubland, Mojave Mixed Woody Scrub, Saltbush Complex, and Disturbed Saltbush Complex.

² Totals generated prior to rounding and therefore may not add precisely.

4.2.3 Sensitive Vegetation Communities

The effects related to the loss of sensitive vegetation communities, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project footprint. Based on the habitat assessment, the modified Project 2022 footprint (Mainline) would permanently convert approximately 4.9 acres and temporarily affect 15.3 acres of Joshua Tree Wooded Shrubland. The modified Project 2022 footprint (Mainline) would also temporarily convert approximately 2 acres of Mesquite Shrubland. Table 4.2-2 shows total permanent and temporary impacts, by sensitive vegetation community, for the modified Project 2022 footprint (Mainline).

Table 4.2-2 Sensitive Vegetation Community Impacts (acres)

Biological Resources	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total ²
Sensitive Plant Community –Permanent Impact (Joshua Tree Wooded Shrubland)	–	–	4.9	–	–	–	4.9
Sensitive Plant Community –Temporary Impact (Joshua Tree Wooded Shrubland)	–	–	15.3	–	–	–	15.3
Sensitive Plant Community –Temporary Impact (Mesquite Shrubland) ¹	–	–	1.7	0.4	–	–	2.0

¹ No permanent impacts identified to Mesquite Shrubland.

² Totals generated prior to rounding and therefore may not add precisely.

Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), BIO-10 (tree removal permit), BIO-11 (compensatory mitigation), and BIO-13 (pre-construction surveys) from the DesertXpress EIS (restated below) would be implemented to reduce or mitigate adverse effects from loss of sensitive vegetation communities.

4.2.4 Potential Effects on Special-Status Plant Populations

The effects related to construction and operational activities on special-status plant populations, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Table 3.14-2 through Table 3.14-7 in the DesertXpress DEIS, which provided a list of special-status plants with potential to occur in each Segment, were evaluated during this assessment, in addition to western Joshua tree. The modified Project 2022 footprint (Mainline) minimizes adverse impacts on sensitive species identified in the DesertXpress EIS because most of the modified Project footprint is now within the I-15 freeway ROW, which provides little habitat for special-status plant species. The biological resources are degraded within the modified Project 2022 footprint (Mainline) due to the proximity to existing maintained roadway infrastructure. Two consecutive years (2022–2023) of special-status plant surveys were conducted at the Ivanpah Utility Corridor only, and not reconducted elsewhere within the modified Project 2022 footprint (Mainline). Western Joshua tree individuals are known to occur within the I-15 freeway ROW, however exact locations and quantity are not known. While they are abundant within the Joshua tree wooded shrubland vegetation community, individuals can occur within the other vegetation and land cover types. The implementation of Mitigation Measures BIO-5 (confine equipment), BIO-13 (avoid known populations), and BIO-14 (mitigation) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects on special-status plant and Joshua tree populations.

A letter report documenting the methods and results of the 2022 and 2023 focused rare plant surveys at the Ivanpah utility corridor was submitted to BLM following conclusion of the surveys (Attachment H4). The results are summarized below. During the scouting surveys in 2022, the previously mapped Rusby's desert-mallow occurrences were not found; however, another similar species within the same genus, desert mallow (*Sphaeralcea ambigua*), was identified blooming within the Ivanpah area and surrounding habitat. Polished blazing star was also not found at any previous locations; however, conditions were extremely dry and there was very little evidence of any annual growth this year.

Based on the conditions during the 2022 scouting surveys, it was determined that the floristic survey on the site should commence on April 20 and 21, 2022, as the few annuals present on site were beginning to dry up. Based on the presence of identifiable and blooming desert mallow in the Ivanpah area and the surrounding habitat, rare plant surveys were conducted at the same time as the general floristic survey. This decision was based on the relatively similar phenologies of the common desert mallow and Rusby's desert-mallow, and the fact that the leaf shape, rather than flower morphology, is the characteristic used to identify Rusby's desert-mallow.

Because of the very dry conditions the prior winter and spring (0.67 inch of rain since the beginning of the hydrological year (October 1, 2021–March 31, 2022, compared to 2.88 inches in an average year) very few annual or herbaceous perennial species were observed. The transect width was therefore adjusted accordingly, with the botanists more widely spaced in locations that had low shrub density and diversity and no visible annuals (the southeastern portions of the Ivanpah area) and more closely spaced where annuals were present, or with a more diverse mix of shrubs (the areas around the Southern California Edison [SCE] Substation). No Rusby's desert-mallow or polished blazing star individuals were observed during the 2022 surveys; however, the poor rainfall and relative dearth of annuals on the Ivanpah area coupled with the fact that previously mapped occurrences of Rusby's desert-mallow were not able to be located this year means that their presence within the Project area cannot be definitively ruled out.

Within the current hydrological year (October 1, 2022–March 31, 2023), approximately 1.28 inches of rainfall in the vicinity of the Ivanpah Utility Corridor. Of note, August and September 2022 resulted in 1.21 inches of rainfall. Although rainfall amounts were below average, conditions were much better than during the 2022 season. Based on the 2023 reference visit and focused surveys, conditions were determined to be suitable for detecting these species during focused surveys. During the 2023 focused surveys, one Rusby's desert mallow individual was observed near the SCE Substation (Attachment H4).

Four special-status species were identified during the course of the surveys and are listed in Table 4.2-3.

Table 4.2-3 Ivanpah Utility Corridor Footprint Special-Status Plant Observations

Scientific Name	Common Name	Special Status
<i>Coryphantha chlorantha</i>	Desert pincushion	CRPR 2B.1
<i>Grusonia parishii</i>	Parish's club-cholla	CRPR 2B.2
<i>Chorizanthe spinosa</i>	Mojave spineflower	CRPR 4.2
<i>Sphaeralcea rusbyi</i> var. <i>eremicola</i>	Rusby's desert mallow	BLM Sensitive; CRPR 1B.2

CRPR – California Rare Plant Rank

1B. Rare, threatened, or endangered in California and elsewhere

2B. Rare or Endangered in California, more common elsewhere

4. Plants of limited distribution - Watch list

Threat Ranks

.1 - Seriously endangered in California

.2 – Fairly endangered in California

Estimates and/or direct counts of all cacti and yucca species within the Ivanpah survey area were recorded. Table 4.2-4 lists the results from the count. Approximately 16,305 cacti and yucca are estimated to be present within the Project area. The majority of the cholla (*Cylindropuntia* sp.) and beavertail cactus (*Opuntia basilaris* var. *basilaris*) are along Colosseum Road, while the remaining species are mainly in the portion of the Ivanpah area surrounding the SCE Substation.

Table 4.2-4 Ivanpah Utility Corridor Footprint Cactus and Yucca Species and Abundance

Scientific Name	Common Name	Number of Individuals ¹
<i>Coryphantha chlorantha</i>	Desert pincushion	6
<i>Cylindropuntia acanthocarpa</i> var. <i>coloradensis</i>	Buckthorn cholla	2,500 ²
<i>Cylindropuntia echinocarpa</i>	Silver cholla	6,950 ²
<i>Cylindropuntia ramosissima</i>	Diamond cholla	5,800 ²
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Cottontop cactus	15
<i>Echinocereus engelmannii</i>	Engelmann's hedgehog cactus	7
<i>Ferocactus cylindraceus</i>	California barrel cactus	2
<i>Grusonia parishii</i>	Parish's club-cholla	12
<i>Mammillaria tetrancistra</i>	Fringe petal fishhook cactus	3
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail cactus	1,000 ²
<i>Yucca schidigera</i>	Mohave Yucca	10
Total		16,305

¹ Does not include individuals in inaccessible portions of the site.

² Estimated number: subsampling occurred due to high density of individuals within the area around Colosseum Road.

4.2.5 Potential Effects on Special-Status Wildlife

The modified Project 2022 footprint (Mainline) is primarily located within the I-15 freeway ROW, which provides little to no habitat for special-status wildlife due to the proximity to existing maintained roadway infrastructure.

Desert Tortoise and Desert Tortoise Habitat

The effects related to construction and operational activities on desert tortoise individuals and desert tortoise habitat, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Acreages of desert tortoise habitat (native vegetation communities) that would be permanently or temporarily affected by the alignment, stations, and operations and maintenance facilities are presented in Table 4.2-4 of this report.

The greatest permanent impacts associated with the modified Project 2022 footprint (Mainline) are bound by the I-15 freeway fencing. Tortoise exclusion fencing is present in California along the I-15 freeway from just north of the proposed Dale Evans Station site in Segment 1 to just north of Yermo, then again near Baker through Mountain Pass. The fencing is also consistently present from Primm, Nevada, to Las Vegas, Nevada. In the 2011 BO for the Project, the USFWS determined that the loss of potential desert tortoise habitat close to the I-15 freeway was unlikely because the existing freeway facility severely fragments the habitat, the proposed habitat losses extended only a short distance from the I-15 freeway, and habitat adjacent to freeways is often degraded for some distance from the edge of the road because of trash, routine maintenance, and predation by common ravens, raptors, coyotes, and feral animals. Additionally, because the habitat loss is distributed in such a linear manner along I-15 freeway, those areas would not be considered essential for the survival and recovery of the species or to provide any important habitat linkages. The updated 2020 BO reflects a similar determination.

Based on the habitat assessment, the modified Project 2022 footprint (Mainline) would permanently convert approximately 286 acres and temporarily affect approximately 591 acres of desert tortoise habitat. Implementation of Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), BIO-15 (prepare translocation plan), BIO-16 (final

monitoring plan), BIO-18 (Nevada compensatory mitigation), BIO-18 (California compensatory mitigation), and BIO-19 (exclusion fencing and culverts) from the DesertXpress EIS, as well as additional minimization and compensatory mitigation measures included in the new BO (DT-1 through DT-29) would reduce or mitigate adverse effects on desert tortoise and desert tortoise habitat.

Mohave Ground Squirrel

Mohave ground squirrel is listed as threatened under the California Endangered Species Act and is a BLM sensitive species. A habitat suitability model for the Mohave ground squirrel was developed as part of the DRECP. The modified Project 2022 footprint (Mainline) occurs in areas that have been modeled as suitable habitat for this species. The effects related to construction and operational activities on Mohave ground squirrel, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Segment 1 and the southern portion of Segment 2 (Barstow/Yermo) provide suitable habitat for this species. Based on the DRECP habitat suitability model, the modified Project 2022 footprint (Mainline) would permanently convert 52 acres and temporarily affect 24 acres of Mohave ground squirrel habitat. Within BLM-administered public lands, the modified Project 2022 footprint (Mainline) would permanently convert 5 acres and temporarily affect 14 acres of Mohave ground squirrel habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-20 (MGS compensatory mitigation) would be implemented to reduce or mitigate adverse effects on Mohave ground squirrel.

Mojave Fringe-toed Lizard

The Mojave fringe-toed lizard is a California species of special concern and is a BLM sensitive species. The species is known from within five miles of the Project area (CNDDDB 2020). A habitat suitability model for the Mojave fringe-toed lizard was developed as part of the DRECP. The modified Project 2022 footprint (Mainline) occurs in areas that have been modeled as suitable habitat for this species. This habitat suitability model was developed in 2016 and was not available as a reference for the analysis of the Preferred Alternative in 2011. However, the effects related to construction and operational activities on Mojave fringe-toed lizard, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). The use of this habitat suitability model merely confirms that the habitat assessment completed in 2011 is consistent with the habitat assessment conducted for the modified Project 2022 (Mainline). Segments 1, 2, and 3 provide suitable habitat for this species. Based on the DRECP habitat suitability model, the modified Project 2022 footprint (Mainline) would permanently convert 8 acres and temporarily affect 153 acres of Mojave fringe-toed lizard habitat. Within BLM-administered public lands, the modified Project 2022 footprint (Mainline) would permanently convert 3 acres and temporarily affect 45 acres of Mojave fringe-toed lizard habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to reduce or mitigate adverse effects on Mojave fringe-toed lizard.

Nesting Raptors and Migratory Birds

The modified Project 2022 footprint (Mainline) would be located within suitable nesting habitat for special-status and migratory birds and raptors. Regulations under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would apply to minimize the modified Project's effects on nesting raptors and migratory birds. The DesertXpress DEIS Sections 3.14.1 includes a detailed description of the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

Effects related to construction and operational activities on nesting raptors and migratory birds, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Based on the vegetation mapping, the modified Project 2022 footprint (Mainline) would permanently convert approximately 286 acres and temporarily affect approximately 591 acres of native vegetation communities. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to reduce or mitigate adverse effects on nesting raptors and migratory birds.

Banded Gila Monster

The banded Gila monster is a California species of special concern and is a BLM sensitive species. Banded Gila monster are known from within five miles of the modified Project 2022 footprint (Mainline) (CNDDDB 2020). In Nevada, the banded Gila monster is classified as state protected and a BLM sensitive species.

Effects related to construction and operational activities on banded Gila monster, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Segment 4 (Mountain Pass) provides suitable habitat for this species. Based on the DRECP habitat suitability model, the modified Project 2022 footprint (Mainline) would temporarily affect less than 0.1 acre of banded Gila monster habitat within BLM-administered public lands. No other suitable habitat effects were identified. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to avoid direct mortality of banded Gila monster.

Clark County Habitat Conservation Plan-Covered Reptile Species

The effects related to construction and operational activities on the Clark County HCP-covered reptile species, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). These species include banded gecko, Great Basin collard lizard, desert iguana, large-spotted leopard lizard, desert tortoise, chuckwalla, western red-tailed skink, sidewinder, speckled rattlesnake, Mojave green rattlesnake, glossy snake, California king snake, western leaf-nosed snake, western long-nosed snake, and Sonoran lyre snake. Based on the vegetation mapping, the modified Project 2022 footprint (Mainline) would permanently convert approximately 138 acres and temporarily affect nearly 225 acres of suitable habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to avoid direct mortality of Clark County HCP-covered reptile species.

Burrowing Owl

Burrowing owls are a California species of special concern and a BLM sensitive species. Effects related to construction and operational activities on burrowing owl, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline). Based on the vegetation mapping, the modified Project 2022 footprint (Mainline) would permanently convert 289 acres and temporarily affect 606 acres of burrowing owl habitat. The temporary and permanent impacts on burrowing owl habitat are slightly larger as for the native vegetation communities listed in Table 4.2-4 because suitable owl habitat includes non-native vegetation communities as well. MMs BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-21 (avoid or passively relocate owls) would be implemented to minimize or avoid potential loss or disturbance of burrowing owls.

Roosting Bats

The effects related to construction and operational activities on roosting bats, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline), though in a greatly reduced capacity now that the modified Project 2022 alignment would run parallel to the I-15 freeway primarily within the I-15 freeway corridor. The DesertXpress EIS specifically mentioned caves and mines in the Clark Mountains as potential bat roosting and nursery sites, which the modified Project 2022 footprint (Mainline) no longer includes. Bridges throughout the I-15 freeway corridor along Segment 1 through Segment 6 provide potential roosting and nursery sites for bats. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to minimize or avoid potential loss or disturbance of roosting bats.

American Badger

The American badger is a California species of special concern. Effects related to construction and operational activities on American badger, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline), though in a greatly reduced capacity now that the modified Project 2022 (Mainline) alignment would run parallel to the I-15 freeway within the I-15 freeway corridor. Based on the vegetation mapping, the modified Project 2022 footprint (Mainline) would permanently convert 289 acres and temporarily affect 606 acres of American badger habitat. The temporary and permanent impacts on American badger habitat are slightly larger as for the native vegetation communities listed in Table 4.2-4 because suitable badger habitat includes non-native vegetation communities as well. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-19 (construct culverts) would be implemented to minimize or avoid potential loss or disturbance of American badger.

Desert Bighorn Sheep

The CDFW manages two subspecies of bighorn sheep in California: Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*) and desert bighorn sheep (*Ovis canadensis nelsoni*). Desert bighorn sheep management in California is divided into two groups: Peninsular desert bighorn sheep (PBS), a federally listed Distinct Population Segment of desert bighorn sheep, which is managed under a recovery plan, and all other desert bighorn sheep, which includes all non-Peninsular *O.c. nelsoni* populations. As of 2022, California's population of approximately 5,000 desert bighorn sheep spanned the Great Basin, Mojave and Sonoran Deserts, and Transverse Ranges (Desert Bighorn Council Transactions, 2021). Limited licensed hunting of desert bighorn sheep, predominately rams, has been allowed through a lottery for general and fundraising license tags since 1987. For the 2019–2020 hunt season, 26 general and three fundraising license tags among seven hunt zones were offered, with 100 percent hunter success. For the 2020–2021 season, 27 general and three fundraising license tags among eight hunt zones were offered, with 90 percent hunter success (Desert Bighorn Council Transactions, 2021).

Segment 1 through Segment 4 provide suitable habitat for desert bighorn sheep. Based on the DRECP habitat suitability model, the modified Project 2022 footprint (Mainline) would permanently convert 29 acres and temporarily affect 128 acres of desert bighorn sheep habitat. Within BLM-administered public lands, the modified Project 2022 footprint (Mainline) would permanently convert 11 acres and temporarily affect 66 acres of desert bighorn sheep habitat. Along I-15, researchers have identified four potential bighorn sheep habitat connectivity corridors within the modified Project 2022 footprint (Mainline). More specifically, I-15 bridges

cross washes in areas of bighorn sheep populations at Rocky Wash (Cady Mountains), Zzyzx Road and Oat Ditch (Soda Mountains), Kali Ditch, and the Clark Mountain Ditch (Mountain Pass).

In considering potential effects to desert bighorn sheep movement, as a result of the Project, FRA reviewed studies and analyses provided by CDFW, NPS and other sources.

- Studies reviewed indicate the existing I-15 has been a significant barrier to desert bighorn sheep movement since its construction in 1957. Specifically, the studies indicate that crossing events of I-15 are rare, which has resulted in the suppressed genetic diversity, physical mortalities, and overall lack of movement in the vicinity of I-15 that is seen today.

As a result, the Modified Project 2022 (Mainline) would not substantially alter the existing conditions because it would be located entirely within the I-15 median and the Project would not close or significantly alter any of the existing bridges and culverts that afford opportunities for wildlife to cross. The ability for bighorn sheep to move from one side of I-15 to the other would generally remain unchanged, compared to existing conditions. Although the addition of the Project would create a permanent barrier to movement across the I-15 highway, such movement is rare, and existing conditions for bighorn sheep would remain largely unchanged. In addition, the I-15 corridor would remain generally 300 feet wide and would not result in further encroachment into desert bighorn sheep habitat.

Nelson's bighorn sheep are a fully protected species under Fish and Game Code and a BLM sensitive species. Overall, effects on bighorn sheep from the modified Project 2022 footprint (Mainline) would be reduced from the effects described in Section 3.14.2.3 of the DesertXpress DEIS, as a greater portion of the Project would occur within the I-15 median instead of adjacent to the highway. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-19 (wildlife crossings) would be implemented to minimize or avoid direct effects on desert bighorn sheep.

Southwestern Willow Flycatcher, Least Bell's Vireo, and Western Yellow-Billed Cuckoo

The Project modifications would not encounter suitable habitat for southern willow flycatcher, least Bell's vireo, or western yellow-billed cuckoo. Therefore, no impacts on suitable habitat are anticipated to occur.

Wildlife Movement

The effects related to construction and operational activities on wildlife movement, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Mainline), though with lower potential for impacts to wildlife movement due to being within or adjacent to the I-15 freeway corridor, which is itself an existing barrier to wildlife. Habitat fragmentation or isolation as a result of the modified Project 2022 footprint (Mainline) is not anticipated. Existing culverts and wildlife crossing locations under the I-15 freeway corridor would remain in place. The implementation of Mitigation Measures BIO-3 (monitoring) and BIO-19 (exclusion fencing, culverts, and wildlife crossings) from the DesertXpress EIS, as well as minimization and mitigation measures outlined in the BO, would be implemented to reduce or mitigate adverse effects on wildlife movement.

4.2.6 Potential Effects on Special Management Lands

The effects related to construction and operational activities on Special Management Lands, as described in Section 3.14.2.3 of the DesertXpress EIS, still apply to the modified Project 2022 footprint (Mainline), though in a greatly reduced capacity now that the modified Project footprint would primarily be within the I-15 freeway corridor. The modified Project 2022 footprint (Mainline) would affect two types of Special

Management Lands: Designated USFWS desert tortoise critical habitat and BLM ACECs. Table 4.2-5 and Table 4.2-6 show the permanent and temporary impacts from the modified Project 2022 footprint (Mainline) on Special Management Lands. Although directly adjacent to Segments 3 and 4, impacts to the National Park Service’s Mojave National Preserve are not proposed.

Although the modified Project 2022 footprint (Mainline) would intersect USFWS critical habitat and BLM ACECs, most of the areas where impacts would occur no longer provide the habitat or unique value for which the area was designated. Each of these Special Management Lands are bound by I-15 freeway on one side or are bisected by I-15 freeway. Most of the modified Project 2022 footprint (Mainline) is within the I-15 freeway ROW, which is relatively degraded and subject to trash, routine maintenance, and disturbances from vehicles leaving the freeway.

Table 4.2-5 Permanent Impacts on Special Management Lands (acres)

Special Management Lands	Modified Project (2022; Mainline)²
Desert Tortoise Critical Habitat	22.7
Superior–Cronese ACEC	7.6
Cronese Basin ACEC	–
Ivanpah ACEC	111.6
Northern Lucerne Wildlife Linkage ACEC	74.6
Shadow Valley ACEC	5.8
Soda Mountains Expansion ACEC	2.3
Halloran Wash ACEC	0.5
Total ¹	225.1

¹Totals generated prior to rounding and therefore may not add precisely.

²Total includes BLM-Administered public lands and non-BLM-Administered public lands.

Table 4.2-6 Temporary Impacts on Special Management Lands (acres)

Special Management Lands	Modified Project (2022; Mainline)²
Desert Tortoise Critical Habitat	241.6
Superior–Cronese ACEC	73.6
Cronese Basin ACEC	1.0
Ivanpah ACEC	117.2
Northern Lucerne Wildlife Linkage ACEC	37.8
Shadow Valley ACEC	49.9
Soda Mountains Expansion ACEC	74.4
Halloran Basin ACEC	0.2
Total ¹	595.7

¹ Totals generated prior to rounding and therefore may not add precisely.

² Total includes BLM-Administered public lands and non-BLM-Administered public lands.

Critical Habitat

Critical habitat is defined in Section 3(5)(A) of the ESA (16 U.S.C. § 1532(5)(A)) as “specific areas within the geographic area occupied by the species, at the time it is listed in accordance with the provisions of Section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require specific management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of Section 4 of this Act upon a determination by the Secretary [of the Interior] that such areas are essential for the conservation of the species.” The designation of critical habitat for a listed species helps focus conservation activities by identifying areas that contain essential habitat features regardless of whether they are currently occupied by the listed species.

Designated critical habitat for desert tortoise is present within the modified Project 2022 footprint (Mainline); the impacts are described below.

Desert Tortoise Critical Habitat

Impacts on the Superior-Cronese and Ivanpah Critical Habitat Units were previously evaluated in the DesertXpress EIS. The modified Project 2022 footprint (Mainline) would permanently convert approximately 23 acres and temporarily affect 242 acres of desert tortoise critical habitat (Table 4.2-5 and Table 4.2-6). Permanent impacts on the Superior-Cronese Critical Habitat Unit include 7 acres and temporary impacts on this unit include 73 acres. Permanent impacts on the Ivanpah Critical Habitat Unit include 15 acres and temporary impacts on this unit include 169 acres.

Due to the presence and operation of the roadway, the PCEs that define the Desert Tortoise Critical Habitat Units (sufficient space to support populations, sufficient quality and quantity of forage species, suitable substrates for burrowing, and habitat protected from disturbance and human-caused mortality) are not present or are severely degraded in the areas where the modified Project 2022 footprint (Mainline) occurs in critical habitat.

Areas of Critical Environmental Concern

An ACEC is a BLM designation that indicates areas with significant values that must be accommodated when BLM considers future management actions and land use proposals. Each ACEC is assigned a disturbance cap to quantify the maximum allowable acreage of permanent disturbance within the ACEC. Only permanent impacts that occur on land under BLM management within the ACECs are subject to the ACEC disturbance caps. Temporary impacts on public lands administered by BLM within ACECs are subject to restoration requirements but do not count towards disturbance caps. Coordination with BLM is ongoing to determine the status of ACEC disturbance caps relative to the modified Project 2022 (Mainline) and Project as a whole.

Table 4.2-7 summarizes the modified Project 2022 footprint (Mainline)-related impacts to BLM-administered public lands within ACECs and their associated disturbance caps.

Table 4.2-7 Modified Project 2022 Footprint (Mainline) Impacts on Public Lands Administered by BLM within ACECs

ACEC	BLM Acres within ACEC	ACEC Disturbance Cap % (acres)	Permanent (acres)	Temporary (acres)	Total Project Impacts (acres)
Cronese Basin	8,470	1% (85)	–	1.0	1.0
Halloran Wash	1,740	0.5% (9)	0.5	0.2	0.7

ACEC	BLM Acres within ACEC	ACEC Disturbance Cap % (acres)	Permanent (acres)	Temporary (acres)	Total Project Impacts (acres)
Superior–Cronese	330,670	0.5 % (1,653)	1.8	17.9	19.7
Ivanpah	78,190	1% (781)	111.6	106.0	217.6
Shadow Valley	197,530	0.5% (988)	5.8	33.9	39.7
Northern Lucerne Wildlife Linkage	21,900	0.5% (110)	16.9	19.8	36.7
Soda Mountains Expansion	16,720	1% (167)	1.9	44.0	45.9
Total	655,220	N/A	138.5	222.8	361.3

Cronese Basin ACEC

The total size of this ACEC is 8,470 acres, and the ACEC disturbance cap is one percent of total acreage, which would be 85 acres. Within this ACEC, the BLM manages 1 acre of land where the modified Project 2022 footprint (Mainline) (0 acre permanent and 1.0 acre temporary) is located.

Halloran Wash ACEC

The total size of this ACEC is 1,740 acres, and the ACEC disturbance cap is 0.5 percent of total acreage, which would be 9 acres. Within this ACEC, the BLM manages 0.7 acre of land where the modified Project 2022 footprint (Mainline) (0.5 acre permanent and 0.2 acre temporary) is located.

Superior-Cronese ACEC

This ACEC was established because it provides high density desert tortoise habitat, provides critical tortoise habitat connectivity, and corresponds to the general boundaries identified by the Desert Tortoise (Mojave Population) Recovery Plan. The majority of this ACEC overlaps with the boundary of the Superior-Cronese Critical Habitat Unit. The impacts on this ACEC occur in Segments 2 and 3. As stated previously, the natural resources are degraded within the modified Project 2022 footprint (Mainline) due to the proximity to existing maintained roadway infrastructure, and they are unlikely to support special-status wildlife. The total size of this ACEC is 330,670 acres and the ACEC disturbance cap is 0.5 percent, which would be 1,653 acres. Within this ACEC, the BLM manages approximately 19.7 acres of land where the modified Project 2022 footprint (Mainline) (1.8 acre permanent and 17.9 acres temporary) is located.

Ivanpah ACEC

This ACEC was established because it is a highly rich ecosystem that provides habitat for desert tortoise, desert bighorn sheep, American badger, Bendire's thrasher, and several BLM sensitive plants. It also provides a critical tortoise habitat linkage between the Mojave National Preserve and land managed by the Southern Nevada BLM Field Office. The 2002 Northern and Eastern Mojave (NEMO) Desert Plan designated the Ivanpah Valley Tortoise Management Area. The majority of this ACEC overlaps with the boundary of the Ivanpah Critical Habitat Unit. The boundary of this ACEC extends into the north and west shoulder of the southbound I-15 freeway corridor, which has been degraded due to its proximity to the I-15 freeway. Impacts on this ACEC occur primarily in the Mountain Pass area and Nipton Road interchange where the ACEC encompasses the entire I-15 freeway corridor. The total size of this ACEC is 78,190 acres, and the ACEC disturbance cap is 1 percent, which would be 781 acres. Within this ACEC, the BLM manages approximately 217.6 acres of land where the modified Project 2022 footprint (Mainline) (111.6 acres permanent and 106 acres temporary) is located.

Shadow Valley ACEC

This ACEC was established because the area provides habitat and supports regionally important populations of desert bighorn sheep and desert tortoise, it is an important east-west migration corridor for bats and a Bat Conservation Area (under the 2002 NEMO Plan), and it provides important wildlife landscape connections. In addition, many culturally significant features occur within this ACEC. The impacts on this ACEC from the modified Project 2022 footprint (Mainline) are entirely within the Segment 3 of the I-15 freeway corridor between Baker and Mountain Pass, mostly related to the facilities near the I-15 freeway interchanges. The natural resources in this ACEC are degraded within the modified Project 2022 footprint (Mainline) due to the proximity to existing maintained roadway infrastructure and are unlikely to support special-status wildlife. The total size of this ACEC is 197,530 acres, and the ACEC disturbance cap is 0.5 percent, which would be 988 acres. Within this ACEC, the BLM manages approximately 39.7 acres of land where the modified Project footprint (Mainline) (5.8 acres permanent and 33.9 acres temporary) is located.

Northern Lucerne Wildlife Linkage ACEC

This ACEC was established because it is considered a regionally significant area—providing habitat for bighorn sheep, golden eagles, desert tortoise, prairie falcons, and numerous sensitive plant populations and because the area provides critical links for wildlife populations to the north and south.

The modified Project 2022 (Mainline) footprint is within the Stoddard/Johnson Valley Special Recreation Management Area (SRMA) and the Granite Mountains Recreation Management Zone (RMZ). The SRMA and Granite Mountains RMZ were established to provide long-term recreation opportunities along the urban interface with adjacent communities. This includes a range of different types of trails and day use experiences ranging from Off-Highway Vehicle (OHV) touring to family hiking excursions.

The land within the Dale Evans Station was included in the ACEC because of its potential to meet the desired future condition objectives in the ACEC Special Unit Management Plans. However, the BLM does not own or manage the land where the Dale Evans Station would be located, and the habitat and wildlife movement value is degraded and of lower quality than other areas of the ACEC because of its adjacency to the I-15 freeway and previous grazing land uses. The natural resources in the I-15 freeway corridor portion of the ACEC are degraded within the modified Project 2022 footprint (Mainline) due to the proximity to existing maintained roadway infrastructure, and they are unlikely to support special-status wildlife. The total size of this ACEC is 21,900 acres, and the ACEC disturbance cap is 0.5 percent, which would be 110 acres. Within this ACEC, the BLM manages approximately 36.7 acres of land where the modified Project 2022 footprint (Mainline) (16.9 acres permanent and 19.8 acres temporary) is located.

Soda Mountains Expansion ACEC

This ACEC was established because the area provides important plant and wildlife connectivity between surrounding Wilderness and Wilderness Study Areas, which encompass large blocks of intact habitat. The I-15 freeway corridor acts as the southern/eastern boundary of this ACEC. The natural resources in the I-15 freeway corridor portion of the ACEC are degraded within the modified Project 2022 footprint (Mainline) due to the proximity to existing maintained roadway infrastructure, and they are unlikely to support special-status wildlife. The total size of this ACEC is 16,720 acres, and the ACEC disturbance cap is one percent, which would be 167 acres. Within this ACEC, the BLM manages approximately 45.9 acres of land where the modified Project 2022 footprint (Mainline) (1.9 acres permanent and 44 acres temporary) is located.

5.0 Methodology for Biological Field Surveys – Modified Project 2022 Footprint (Sloan VMF)

5.1 Vegetation Mapping

For the DesertXpress DEIS, the Project footprint, including associated buffers to evaluate alternatives, was mapped during 2006-2010 field surveys. The modified Project 2022 footprint (Sloan VMF) was not included in the 2006-2020 field surveys, so ICF biologists conducted vegetation mapping of the footprint on April 18 through 20, 2022, and on May 10 and 11, 2023, during focused rare plant surveys, following the methods described in Section 3.14.2.3 of the DesertXpress DEIS. For consistency, vegetation in the area was identified using the same classification scheme (Mojave Desert Ecosystem Program: Central Mojave Vegetation Database [USGS 2004]). Details of the weather conditions during the survey are shown in Table 5.1-1.

Table 5.1-1 Weather Conditions during Modified Project 2022 Footprint (Sloan VMF) Vegetation Mapping

Dates of Survey	Personnel	Weather Conditions	Approximate Temperatures During Survey
04/18/22	Brian Cropper Alexandra Fowler	Clear with winds from 9–20 miles per hour (mph)	86°F–91°F
04/19/22	Brian Cropper Alexandra Fowler Shawn Johnston	Clear with winds from 13–26 mph	72°F–86°F
04/20/22	Brian Cropper Alexandra Fowler Shawn Johnston	Clear with winds from 1–15 mph; light rain	78°F–84°F
05/10/23	Alexandra Fowler Shawn Johnston Nick Sutter	Overcast (30% cloud cover) with winds from 5–10 mph	75°F–83°F
05/11/23	Alexandra Fowler Shawn Johnston Nick Sutter	Clear with winds from 5–15 mph	75°F–83°F

5.2 Special-Status Plants

Through coordination with the BLM Southern Nevada District Office, the District botanist (Lara Kobelt) requested focused surveys for rosy two-toned penstemon (*Penstemon bicolor* ssp. *roseus*), a BLM sensitive species, and a cacti and yucca population estimate throughout the Sloan VMF (Attachment H8). The appropriate survey window for this penstemon species is late April to early May, which is also suitable for the yucca and cacti survey. In addition, a query of USFWS IPaC (Attachment H9) was conducted to determine if plant species listed by the USFWS could occur within the vicinity of the Sloan VMF. On April 15, 2022, ICF biologists (Alexandra Fowler and Matt Stewart) scouted a nearby *P. bicolor* ssp. *roseus* reference population, approximately 24 miles north of the Sloan VMF site, to determine the appropriate timing for the focused survey. After confirmation the species was in bloom, the focused survey was conducted on April 18 through April 20, 2022 using the personnel and methods as described above in Section 5.1. During the vegetation mapping and special status plant survey, estimates and/or direct counts of all cacti and yucca species within the Sloan VMF were also recorded.

In order to determine whether a fall survey of the Sloan VMF was required to ensure that all potential BLM-listed sensitive species were adequately documented, a review of existing data for special-status plants was performed for an approximately 15-mile radius of the Sloan VMF. A search of the Nevada Division of Natural Heritage database was conducted for sensitive species occurring in Clark County; the resulting BLM-sensitive species were then analyzed to determine if there were known occurrences of the species in proximity to the Sloan VMF. A NatureServe search was performed for the Sloan VMF, and a CalFlora search was conducted because the database does contain rare plant occurrence data from areas of Nevada near the California border. All rare species located for each source were then cross-referenced with the Nevada regional BLM-listed sensitive species list for the Southern Nevada District Office. For all BLM-listed sensitive species identified in the literature review, a further analysis was conducted to determine whether suitable habitat existed within the Sloan VMF footprint for each species and, if it did, whether the species was a fall-blooming species. Based on this analysis, ICF botanists determined that fall surveys were not warranted. To document this decision, a *Fall Rare Plant Survey Exemption Justification* (ICF 2022b; Attachment H10) was provided to the BLM Southern Nevada District Office for the Sloan VMF, for which the BLM Natural Resource Specialist concurred on October 28, 2022 (Attachment H10). Each of the database searches is included as attachments to Attachment H10.

On April 27, 2023, ICF biologists Alexandra Fowler and Garrett Moss scouted the same reference population of *P. bicolor* ssp. *roseus* scouted in 2022 to determine the appropriate timing for the focused survey. After confirmation that the species was in bloom, the focused survey was conducted on May 10 and 11, 2023, using the personnel and methods described above in Section 5.1. Beyond what was recorded during the 2022 special-status plant survey, any additional cacti or yucca species were recorded.

5.3 Special-Status Wildlife

Through coordination with the BLM Southern Nevada District Office, the District wildlife biologist (Curtis Walker) determined focused surveys for desert tortoise (*Gopherus agassizii*), listed as sensitive by BLM, threatened by USFWS, and protected/threatened by state of Nevada, would be required for the Sloan VMF (Attachment H8). However, because desert tortoise are already known to occur within the Sloan VMF footprint and because of the existing USFWS Biological Opinion calculated take and prescribed mitigation requirements to place prior to construction, focused desert tortoise surveys were determined not necessary at this stage of the Project. No other species surveys were recommended by BLM.

The BLM list of sensitive species for the Southern Nevada District Office (Attachment H11) and the USFWS IPaC query (Attachment H9) was reviewed by the biologists who performed the vegetation mapping and focused plant survey at the Sloan VMF. For each wildlife species on these lists, habitat suitability was determined based on field observations, individual species range and habitat characteristics, and general knowledge of the Sloan VMF area.

6.0 Effects Analysis for Biological Resources – Modified Project 2022 Footprint (Sloan VMF)

For this Reevaluation, the methodology described in Section 3.14.2.2 of the DesertXpress DEIS and Section 3.14.2 of the DesertXpress SEIS were used to evaluate impacts of the modified Project 2022 footprint (Sloan VMF) on biological resources. Similarly, thresholds for determining impacts on vegetation and wildlife from Section 3.14.4.2 of the DesertXpress DEIS were used to evaluate effects from the modified Project 2022

footprint (Sloan VMF). The following sections evaluate biological resource impacts for the modified Project 2022 footprint (Sloan VMF).

6.1 Vegetation Mapping

Table 6.1-1 shows the permanent, temporary, and overall impacts on vegetation communities associated with the modified Project 2022 footprint (Sloan VMF).

Table 6.1-1 Modified Project 2022 Footprint (Sloan VMF) Vegetation Impacts (acres)

Vegetation Type	Sloan VMF		
	Permanent	Temporary	Overall ²
Barren/Developed	8.4	0.5	8.8
Creosote Bush Shrubland ¹	111.7	74.1	185.8
Disturbed Creosote Bush Shrubland ¹	19.2	7.2	26.4
Desert Wash Scrub ¹	15.6	4.5	20.0
Mojave Mixed Woody Scrub ¹	91.1	18.2	109.3
Total²	246.0	104.5	350.4

¹ Native Vegetation Community

² Totals generated prior to rounding and therefore may not add precisely.

6.2 Environmental Consequences

6.2.1 Introduction or Spread of Invasive, Non-Native Weed Species Into Natural Vegetation Communities

The effects related to the introduction and spread of invasive, non-native weed species, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). The modified Project 2022 footprint (Sloan VMF) could introduce or spread invasive, non-native weed species into natural vegetation communities within the site. The implementation of Mitigation Measure BIO-4 (avoid dispersal) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects from noxious weeds.

6.2.2 Loss of or Damage to Native Vegetation Communities

The effects related to the loss of or damage to native vegetation communities, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). Acreages of native vegetation communities that would be permanently or temporarily affected by the Sloan VMF are presented in Table 6.2-1. Based on the vegetation mapping, the Sloan VMF would permanently convert approximately 237.6 acres and temporarily affect approximately 104 acres of native vegetation communities. Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), and BIO-18 (Nevada compensatory mitigation) from the DesertXpress EIS (restated below) would be implemented to avoid, minimize or mitigate adverse effects from loss of or damage to native vegetation communities.

Table 6.2-1 Modified Project 2022 Footprint (Sloan VMF) Native Vegetation Community Impacts (acres)

Biological Resources	Sloan VMF		
	Permanent	Temporary	Overall
Native Vegetation Communities ¹	237.6	104.0	341.6

6.2.3 Sensitive Vegetation Communities

There were no sensitive vegetation communities identified within the modified Project 2022 footprint (Sloan VMF). Therefore, the Sloan VMF is not anticipated to affect sensitive vegetation communities.

6.2.4 Potential Effects on Special-Status Plant Populations

Penstemon bicolor ssp. *roseus* was not observed during the focused plant survey at the modified Project 2022 footprint (Sloan VMF) during the 2022 or 2023 focused surveys. Based on input from the BLM District botanist and the botanists who performed the rare plant survey, no plant species with federal (USFWS and BLM) status were observed or have the potential to occur within the modified Project 2022 footprint (Sloan VMF). As such, effects on USFWS and BLM special-status plant populations are not expected. One species, however, the Mojave milkweed (*Asclepias nyctaginifolia*), with a CNPS CRPR of 2B.1, was detected within the modified Project 2022 footprint (Sloan VMF).

Estimates and/or direct counts of all cacti and yucca species within the modified Project 2022 footprint (Sloan VMF) were recorded. Table 6.2-2 lists the results from the count.

Table 6.2-2 Modified Project 2022 Footprint (Sloan VMF) Cacti and Yucca Species Estimates

Scientific Name	Common Name	Sloan VMF ¹
<i>Cylindropuntia echinocarpa</i>	Silver cholla	123
<i>Cylindropuntia ramosissima</i>	Diamond cholla	76
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Cottontop cactus	131
<i>Echinocereus engelmannii</i>	Engelmann's hedgehog cactus	32
<i>Ferocactus cylindraceus</i>	California barrel cactus	8 ²
<i>Mammillaria tetrancistra</i>	Fringe petal fishhook cactus	2
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail cactus	64
<i>Yucca schidigera</i>	Mojave yucca	500-1,000
Total		936-1,436

¹ These totals were estimated during the April 2022 focused rare plant surveys.

² This total is based upon GPS survey data, not estimates.

The implementation of Mitigation Measures BIO-5 (confine equipment), BIO-14 (avoid known populations), and BIO-15 (mitigation) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects on sensitive plant populations.

6.2.5 Potential Effects on Special-Status Wildlife

The modified Project 2022 footprint (Sloan VMF) is located west of the I-15 freeway ROW on undeveloped land, which provides habitat for special-status wildlife.

Desert Tortoise and Desert Tortoise Habitat

Effects related to construction and operational activities on desert tortoise individuals and habitat, described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF).

A desert tortoise individual was observed during the focused rare plant surveys within the modified Project 2022 footprint (Sloan VMF). Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 238 acres and temporarily affect approximately 104 acres of desert tortoise habitat.

Implementation of Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), BIO-15 (prepare translocation plan), BIO-16 (final monitoring plan), BIO-18 (Nevada compensatory mitigation), and BIO-19 (exclusion fencing and culverts) from the DesertXpress EIS, as well as additional minimization and compensatory mitigation measures included in the new BO (Chapter 8), would reduce or mitigate adverse effects on desert tortoise and desert tortoise habitat.

Mohave Ground Squirrel

The Mohave ground squirrel's known range does not include the modified Project 2022 footprint (Sloan VMF). The species' range is limited to desert habitats within California.

Mojave Fringe-toed Lizard

The Mojave fringe-toed lizard's known range does not include the modified Project 2022 footprint (Sloan VMF). The species' range is limited to desert habitats within California.

Nesting Raptors and Migratory Birds

The modified Project 2022 footprint (Sloan VMF) would be located within suitable nesting habitat for special-status and migratory birds and raptors. Regulations under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would apply to minimize the modified Project 2022 footprint (Sloan VMF) effects on nesting raptors and migratory birds. The DesertXpress DEIS Section 3.14.1 includes a detailed description of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Effects related to construction and operational activities on nesting raptors and migratory birds, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 238 acres and temporarily affect approximately 104 acres of suitable nesting habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to reduce or mitigate adverse effects on nesting raptors and migratory birds.

Banded Gila Monster

The banded Gila monster is a protected species in Nevada and BLM sensitive species. Based on vegetation mapping and habitat assessment performed during the focused rare plant survey, suitable habitat for this species is not present within the modified Project 2022 footprint (Sloan VMF). As such, effects on this species are not expected.

BLM Southern Nevada Sensitive Species

The entire modified Project 2022 footprint (Sloan VMF) occurs on BLM-administered public lands. As such, the 2017 Final BLM Southern Nevada special-status species lists were reviewed and the special-status species were reviewed for their potential to occur within the Project site. The effects related to construction and operational activities on the BLM-sensitive species, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). These species include bats, reptiles such as banded Gila monster, desert horned lizard, desert iguana, Great Basin collard lizard, long-nosed leopard lizard, desert tortoise, chuckwalla, sidewinder, shovel-nosed snake; and a number of birds and raptors. Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 238 acres and temporarily affect approximately 104 acres of suitable habitat. Mitigation Measures BIO-1 (worker education

program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to avoid direct mortality of these species.

Burrowing Owl

Burrowing owls are a BLM sensitive species. Effects related to construction and operational activities on burrowing owl, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 246 acres and temporarily affect approximately 105 acres of suitable nesting habitat. The temporary and permanent impacts on burrowing owl habitat are slightly larger as for the native vegetation communities listed in Table 4.2-1 because suitable owl habitat includes non-native vegetation communities as well. MMs BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-21 (avoid or passively relocate owls) would be implemented to minimize or avoid potential loss or disturbance of burrowing owls.

Roosting Bats

The effects related to construction and operational activities on roosting bats, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). Based on the vegetation mapping and habitat assessment, bat hibernacula and roosting sites are not expected to occur with the modified Project 2022 footprint (Sloan VMF). Although, foraging may occur throughout the modified Project 2022 footprint (Sloan VMF).

American Badger

The American badger is a California species of special concern. Effects related to construction and operational activities on American badger, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint (Sloan VMF). Based on the vegetation mapping, the Sloan VMF footprint would permanently convert approximately 246 acres and temporarily affect approximately 105 acres of suitable nesting habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-19 (construct culverts) would be implemented to minimize or avoid potential loss or disturbance of American badger.

Desert Bighorn Sheep

Desert bighorn sheep are a BLM sensitive species. Overall, effects on bighorn sheep from the modified Project 2022 footprint (Mainline) would be reduced from the effects described in Section 3.14.2.3 of the DesertXpress DEIS, as a greater portion of the Project would occur within the I-15 median instead of adjacent to the highway. The potential for this species to occur within the modified Project 2022 footprint (Sloan VMF) is low because the site lacks adequate predator avoidance topography and vegetation.

Southwestern Willow Flycatcher, Least Bell's Vireo, and Western Yellow-Billed Cuckoo

The modified Project 2022 footprint (Sloan VMF) would not encounter suitable habitat for southern willow flycatcher, least Bell's vireo, or western yellow-billed cuckoo.

Wildlife Movement

The Sloan VMF is located adjacent to the I-15 freeway corridor, which serves as a major barrier for wildlife movement. Habitat fragmentation or isolation as a result of the modified Project 2022 footprint (Sloan VMF) is not anticipated. Existing culverts and wildlife crossing locations under the I-15 freeway corridor would remain in place. Overall, effects on wildlife movement from the modified Project 2022 footprint (Mainline) would be reduced from the effects described in Section 3.14.2.3 of the DesertXpress DEIS, as a greater portion of the Project would occur within the I-15 median instead of adjacent to the highway. The implementation of Mitigation Measures BIO-3 (monitoring) and BIO-19 (exclusion fencing, culverts, and wildlife crossings) from the DesertXpress EIS, as well as minimization and mitigation measures outlined in the BO, would be implemented to reduce or mitigate adverse effects on wildlife movement.

6.2.6 Potential Effects on Special Management Lands

The modified Project 2022 footprint (Sloan VMF) would not affect either USFWS-designated critical habitat or BLM ACEC. The entirety of the Sloan VMF facility occurs on BLM-administered public lands.

7.0 Effects Analysis for Biological Resources for Modified Project 2022 Footprint

This chapter is intended to compare the potential effects associated with the modified Project 2022 footprint to the effects analyzed in the September 2020 Reevaluation and the DesertXpress EIS. The biological study area for the Modified Project 2022 was reduced in size compared to the 2011 study area, because the modified Project 2022 footprint is primarily located within or adjacent to the existing I-15 freeway ROW. Based on the desktop analysis, areas of the modified Project 2022 footprint that were not previously evaluated were determined to contain biological resources of similar type, quality, and quantity, relative to the areas evaluated in the DesertXpress EIS and the September 2020 Reevaluation.

7.1 Vegetation Mapping

Table 7.1-1 shows the overall impacts (permanent and temporary impacts combined) on vegetation communities within the modified Project 2022 footprint. Table 7.1-2 and Table 7.1-3 separate the permanent and temporary impacts associated with the modified Project 2022 footprint.

Table 7.1-1 Modified Project Footprint 2022 Overall Vegetation Impacts (acres)

Vegetation Type	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6 w/Sloan VMF	Total Range ²
Barren/Developed	343.6	230.6	265.7	91.1	310.3	126.9	1,368.2
Blackbrush Shrubland	--	--	10.4	1.1	--	--	11.5
Creosote Bush Shrubland	106.7	13.8	174.4	86.7	282.3	242.5	906.4
Disturbed Creosote Bush Shrubland	2.0	19.1	19.1	1.6	--	26.7	68.5
Desert Wash Scrub	--	5.9	8.5	5.7	--	20.0	40.1
Joshua Tree Wooded Shrubland ¹	--	--	20.2	--	--	--	20.2
Mesquite Shrubland	--	--	1.7	0.4	--	--	2.1
Mojave Mixed Woody Scrub	--	--	5.3	19.2	--	109.3	133.8
Ruderal	1.3	--	--	--	--	0.8	2.1
Saltbush Complex	--	--	16.4	--	--	--	16.4
Disturbed Saltbush Complex	3.3	3.6	6.0	--	--	6.9	19.8
Sparse Vegetation	--	14.0	0.5	--	--	--	14.5
Total per Segment²	456.9	286.9	528.2	205.7	592.7	533.1	2,603.4

¹ Sensitive Vegetation Community² Totals generated prior to rounding and therefore may not add precisely.**Table 7.1-2 Modified Project Footprint Permanent Vegetation Impacts (acres)**

Vegetation Type	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6 w/Sloan VMF	Total Range ²
Barren/Developed	285.9	9.0	15.4	61.7	293.0	66.6	731.6
Blackbrush Shrubland	--	--	1.6	--	--	--	1.6
Creosote Bush Shrubland	64.0	0.2	17.3	59.8	102.9	136.5	380.7
Disturbed Creosote Bush Shrubland	--	--	5.6	1.6	--	19.3	26.5
Desert Wash Scrub	--	--	1.4	--	--	15.6	17
Joshua Tree Wooded Shrubland ¹	--	--	4.9	--	--	--	4.9
Mojave Mixed Woody Scrub	--	--	0.1	--	--	91.1	91.2
Ruderal	1.3	--	--	--	--	0.1	1.4
Saltbush Complex	--	--	0.3	--	--	--	0.3
Disturbed Saltbush Complex	1.5	0.2	--	--	--	--	1.7
Total per Segment²	352.7	9.4	46.7	123.1	395.9	329.3	1,257.1

¹ Sensitive Vegetation Community² Totals generated prior to rounding and therefore may not add precisely.

Table 7.1-3 Modified Project Footprint (2022) Temporary Vegetation Impacts (acres)

Vegetation Type	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6 w/Sloan VMF	Total ²
Barren/Developed	57.6	221.6	250.3	29.4	17.3	60.4	636.6
Blackbrush Shrubland	--	--	8.8	1.1	--	--	9.9
Creosote Bush Shrubland	42.7	13.6	157.1	26.8	179.4	106	525.6
Disturbed Creosote Bush Shrubland	2.0	19.1	13.4	--	--	7.4	41.9
Desert Wash Scrub	--	5.9	7.1	5.7	--	4.5	23.2
Joshua Tree Wooded Shrubland ¹	--	--	15.3	--	--	--	15.3
Mesquite Shrubland	--	--	1.7	0.4	--	--	2.1
Mojave Mixed Woody Scrub	--	--	5.2	19.2	--	18.2	42.6
Ruderal	--	--	--	--	--	0.6	0.6
Saltbush Complex	--	--	16.1	--	--	--	16.1
Disturbed Saltbush Complex	1.8	3.4	6.0	--	--	6.9	18.1
Sparse Vegetation	--	14.0	0.5	--	--	--	14.5
Total per Segment²	104.2	277.5	481.5	82.5	196.8	204.1	1,346.6

¹ Sensitive Vegetation Community

² Totals generated prior to rounding and therefore may not add precisely.

7.2 Environmental Consequences

7.2.1 Introduction or Spread of Invasive, Non-Native Weed Species Into Natural Vegetation Communities

The effects related to the introduction and spread of invasive, non-native weed species, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The implementation of Mitigation Measure BIO-4 (avoid dispersal) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects from noxious weeds, and the Project modifications would not result in substantial changes in the evaluation of invasive, non-native weed species impacts of the DesertXpress EIS.

7.2.2 Loss of or Damage to Native Vegetation Communities

The effects related to the loss of or damage to native vegetation communities, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project 2022 footprint would result in reduced acreages of permanent and temporary impacts on these vegetation communities relative to the DesertXpress EIS. Based on the vegetation mapping and application of removed impact areas and added impact areas since the September 2020 Reevaluation, the modified Project 2022 footprint would permanently convert approximately 236 acres and temporarily affect approximately 618 acres of native vegetation communities. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 1,371 acres of permanent impacts and approximately 1,313 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 1,500 acres and temporarily affect 4,500 acres of native vegetation communities. In

addition, most of the modified Project impacts now occur within or adjacent to the I15 freeway ROW, which contains degraded quality native vegetation communities. Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), BIO-18 (Nevada compensatory mitigation), and BIO-18 (California compensatory mitigation) from the DesertXpress EIS (restated below) would be implemented to avoid, minimize or mitigate adverse effects from loss of or damage to native vegetation communities. Thus, the Project modifications would not result in substantial changes in the evaluation of native vegetation community impacts of the DesertXpress EIS.

Table 7.2-1 shows total vegetation impacts, by impact type, for the original, modified Project 2020, and 2022 footprints.

Table 7.2-1 Comparison of Native Vegetation Community Impacts (acres)

	DesertXpress EIS (2011)	Modified Project (2020)	Modified Project (2022)			Sum of Modified Project Footprints
	Preferred Alternative		Removed Since the September 2020 Reevaluation	Added Since the September 2020 Reevaluation	Modified Project (2022)	
Biological Resources						
Native Vegetation Communities ¹ -- Permanent Impact	1,432.3 to 1,556.6	1,135.3	-288.1	523.9	235.8	1,371.1
Native Vegetation Communities -- Temporary Impact	4,584.8	694.6	-76.7	694.8	618.1	1,312.7

¹ Native Vegetation Communities include: Blackbrush Shrubland, Creosote Bush Shrubland, Disturbed Creosote Bush Shrubland, Desert Wash Scrub, Joshua Tree Wooded Shrubland, Mojave Mixed Woody Scrub, Saltbush Complex, and Disturbed Saltbush Complex.

7.2.3 Sensitive Vegetation Communities

Effects related to the loss of sensitive vegetation communities, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. A previously evaluated sensitive plant community, Joshua Tree Wooded Shrubland, is present within Segment 3 of the modified Project footprint. However, as outlined in Table 7.2-2 the acreage of permanent and temporary impacts on this sensitive vegetation community has been reduced substantially relative to the DesertXpress EIS analysis because the modified Project 2022 footprint is now primarily located within or adjacent to the I-15 freeway ROW. The DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 84 acres and temporarily affect 194 acres of Joshua Tree Wooded Shrubland. Based on the vegetation mapping, the modified Project 2022 footprint would permanently convert approximately 4.9 acres and temporarily affect 15.3 acres of Joshua Tree Wooded Shrubland.

The DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 2 acres and temporarily affect 13 acres of Mesquite Shrubland. The modified Project 2022 footprint is no longer anticipated to permanently affect Mesquite Shrubland, however 2 acres of temporary impacts may occur.

Mitigation Measures BIO-5 (confine equipment), BIO-6 (revegetation), BIO-7 (retain topsoil), BIO-8 (restore topography), BIO-9 (erosion control), BIO-10 (tree removal permit), BIO-11 (compensatory mitigation), and BIO-13 (pre-construction surveys) from the DesertXpress EIS (restated below) would be implemented to reduce

or mitigate adverse effects from loss of sensitive vegetation communities. Thus, the Project modifications would not result in substantial changes in the evaluation of sensitive vegetation community impacts of the DesertXpress EIS.

Table 7.2-2 Comparison of Sensitive Vegetation Community Impacts (acres)

Sensitive Plant Community	DesertXpress EIS (2011)	Modified Project (2020)	Modified Project (2022)			Sum of Modified Project Footprint
	Preferred Alternative		Removed Since the September 2020 Reevaluation	Added Since the September 2020 Reevaluation	Modified Project (2022)	
Permanent Impact (Joshua Tree Wooded Shrubland)	83.8	4.9	--	4.9	4.9	9.8
Permanent Impact (Mesquite Shrubland)	1.9	--	--	--	--	--
Temporary Impact (Joshua Tree Wooded Shrubland)	194.4	1.7	--	15.3	15.3	17.0
Temporary Impact (Mesquite Shrubland)	13.4	--	--	2.0	2.0	2.0

¹ Native Vegetation Communities include: Blackbrush Shrubland, Creosote Bush Shrubland, Disturbed Creosote Bush Shrubland, Desert Wash Scrub, Joshua Tree Wooded Shrubland, Mojave Mixed Woody Scrub, Saltbush Complex, and Disturbed Saltbush Complex.

7.2.4 Potential Effects on Special-Status Plant Populations

The effects related to construction and operational activities on special-status plant populations, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project footprint minimizes adverse impacts on sensitive species identified in the DesertXpress EIS because most of the Project footprint is now within or adjacent to the I-15 freeway ROW, which provides little habitat for special-status plant species. The biological resources are degraded within the modified Project 2022 footprint due to the proximity to existing maintained roadway infrastructure. Two consecutive years (2022 and 2023) of special-status plant surveys were conducted within the Ivanpah Utility Corridor and the Sloan VMF site. Although no special-status plants listed under the federal ESA were identified during the surveys performed at the Ivanpah Utility Corridor, one individual Rusby's desert mallow, a species designated as sensitive by BLM, was identified within the proposed footprint. Special-status plants listed under the federal ESA or designated sensitive by the BLM were not identified during the surveys performed at the Sloan VMF. The implementation of Mitigation Measures BIO-5 (confine equipment), BIO-14 (avoid known populations), and BIO-15 (mitigation) from the DesertXpress EIS would be implemented to reduce or mitigate adverse effects on special-status plant populations, and the Project modifications would not result in substantial changes in the evaluation of special-status plant population impacts of the DesertXpress EIS.

7.2.5 Potential Effects on Special-Status Wildlife

The modified Project footprint is now primarily located within the I-15 freeway ROW, which provides little to no habitat for special-status wildlife due to the proximity to existing maintained roadway infrastructure. As described below, the modified Project 2022 footprint would result in fewer acres of permanent and temporary impacts on wildlife habitat relative to the impacts evaluated in the DesertXpress EIS. Therefore, the Project modifications would not result in substantial changes in the evaluation of special-status wildlife impacts of the DesertXpress EIS.

Desert Tortoise and Desert Tortoise Habitat

The effects related to construction and operational activities on desert tortoise individuals and desert tortoise habitat, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. Acreages of desert tortoise habitat (native vegetation communities) that would be permanently or temporarily affected by the modified Project 2022 footprint are presented in Table 7.2.1 of this report. For comparison, the impacts evaluated in the DesertXpress EIS have been included. The combination of impacts associated with the modified Project 2020 and 2022 footprints would result in fewer acres of permanent and temporary impacts, as compared to the impacts evaluated in the DesertXpress EIS.

The modified Project 2022 footprint would permanently convert approximately 524 acres and temporarily affect approximately 695 acres of desert tortoise habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 1,371 acres of permanent impacts and approximately 1,312 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 1,557 acres and temporarily affect approximately 4,585 acres of desert tortoise habitat. Implementation of Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), BIO-15 (prepare translocation plan), BIO-16 (final monitoring plan), BIO-18 (Nevada compensatory mitigation), BIO-18 (California compensatory mitigation), and BIO-19 (exclusion fencing and culverts) from the DesertXpress EIS, as well as additional minimization and compensatory mitigation measures included in the new BO (Section 3.2.8), would reduce or mitigate adverse effects on desert tortoise and desert tortoise habitat.

Mohave Ground Squirrel

The effects related to construction and operational activities on Mohave ground squirrel, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project 2022 footprint would permanently convert 52 acres and temporarily affect 24 acres of Mohave ground squirrel habitat. Within BLM-administered public lands, the modified Project 2022 footprint would permanently convert 5 acres and temporarily affect 14 acres of Mohave ground squirrel habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 450 acres of permanent impacts and approximately 44 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 447 acres and temporarily affect 562 acres of Mohave ground squirrel habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-20 (MGS compensatory mitigation) would be implemented to reduce or mitigate adverse effects on Mohave ground squirrel.

Mojave Fringe-toed Lizard

The effects related to construction and operational activities on Mojave fringe-toed lizard, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project 2022 footprint would permanently convert 8 acres and temporarily affect 153 acres of Mojave fringe-toed lizard habitat. Within BLM-administered public lands, the modified Project 2022 footprint would permanently convert 3 acres and temporarily affect 45 acres of Mojave fringe-toed lizard habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 12 acres of permanent impacts and approximately 164 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 4 acres and temporarily affect 8 acres of Mojave fringe-toed lizard habitat. Mitigation Measures BIO-1 (worker education program),

BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to reduce or mitigate adverse effects on Mojave fringe-toed lizard.

Nesting Raptors and Migratory Birds

The modified Project 2022 footprint would be located within suitable nesting habitat for special-status and migratory birds and raptors. Regulations under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would apply to minimize the modified Project's effects on nesting raptors and migratory birds.

Effects related to construction and operational activities on nesting raptors and migratory birds, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project would result in fewer permanent and temporary impacts, in terms of acreage, on vegetation communities that provide potential habitat for nesting raptors and migratory birds, compared to the impacts previously evaluated. The DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 1,557 acres and temporarily affect 4,585 acres of native vegetation communities which provide suitable nesting bird and raptor habitat. The modified Project 2022 footprint would permanently convert approximately 524 acres and temporarily affect approximately 695 acres of nesting bird and raptor habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 1,371 acres of permanent impacts and approximately 1,313 acres of temporary impacts on nesting bird and raptor habitat.

Those totals include a reduction in impacts on Joshua Tree Wooded Shrubland (278 acres down to 27 acres) and Mesquite Shrubland (15 acres down to 2 acres), which provide important nesting substrate for migratory birds and raptors. In addition, the majority of the I-15 freeway ROW does not provide suitable nesting habitat for migratory birds and raptors, with certain exceptions including existing electrical transmission line towers, Mountain Pass, and freeway overpasses. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to reduce or mitigate adverse effects on nesting raptors and migratory birds.

Banded Gila Monster

Effects related to construction and operational activities on banded Gila monster, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. Segment 4 (Mountain Pass) provides suitable habitat for this species. The DesertXpress EIS did not provide an estimate on the quantity of impacts on banded Gila monster habitat. The Preferred Alternative passed through the Clark Mountains (north of Mountain Pass) which were the location of the closest records for the species in the area. The modified Project 2022 footprint no longer includes the Clark Mountains, and is now within the I-15 freeway median through the Mountain Pass area which provides lower quality habitat than the Clark Mountains. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to avoid direct mortality of banded Gila monster.

Clark County Habitat Conservation Plan-Covered Reptile Species

The effects related to construction and operational activities on the Clark County HCP-covered reptile species, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project 2022 footprint would result in more permanent and fewer temporary

impacts, in terms of acreage, on suitable Clark County HCP-covered reptile species habitat, as compared to the impacts previously evaluated in the DesertXpress EIS. The modified Project 2022 footprint would permanently convert 376 acres and temporarily affect 329 acres of suitable habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 643 acres of permanent impacts and approximately 603 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 248 acres and temporarily affect 821 acres of suitable habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to avoid direct mortality of Clark County HCP-covered reptile species.

Burrowing Owl

Effects related to construction and operational activities on burrowing owl, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint. The modified Project 2022 footprint would result in more permanent and fewer temporary impacts, in terms of acreage, on vegetation communities that provide potential habitat for burrowing owls, as compared to the impacts previously evaluated in the DesertXpress EIS. The modified Project 2022 footprint would permanently convert approximately 535 acres and temporarily affect 711 acres of burrowing owl habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 1,541 acres of permanent impacts and approximately 1,403 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 1,510 acres and temporarily affect 4,135 acres of burrowing owl habitat. MMs BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-21 (avoid or passively relocate owls) would be implemented to minimize or avoid potential loss or disturbance of burrowing owls.

Roosting Bats

The effects related to construction and operational activities on roosting bats, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint, though in a greatly reduced capacity now that the modified Project alignment would run parallel to the I-15 freeway primarily within the I-15 freeway corridor. The DesertXpress EIS specifically mentioned caves and mines in the Clark Mountains as potential bat roosting and nursery sites, which the modified Project 2022 footprint no longer includes. Bridges throughout the I-15 freeway corridor along Segment 1 through Segment 6 provide potential roosting and nursery sites for bats. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), and BIO-5 (confine equipment) would be implemented to minimize or avoid potential loss or disturbance of roosting bats.

American Badger

Effects related to construction and operational activities on American badger, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint, though in a greatly reduced capacity now that the modified Project alignment would run parallel to the I-15 freeway within the I-15 freeway corridor. The modified Project 2022 footprint would permanently convert approximately 535 acres and temporarily affect 711 acres of American badger habitat. The sum of the modified Project 2022 footprint and the modified Project 2020 footprint results in approximately 1,541 acres of permanent impacts and approximately 1,403 acres of temporary impacts, whereas the DesertXpress EIS estimated that the Preferred Alternative would permanently convert approximately 1,510 acres and temporarily affect 4,135 acres of American badger habitat. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction

surveys and fencing), BIO-3 (monitoring), BIO-5 (confine equipment), and BIO-19 (construct culverts) would be implemented to minimize or avoid potential loss or disturbance of American badger.

Desert Bighorn Sheep

The Wheaton Springs Wash is located within Segment 4 (Mountain Pass) of the Project. The modified Project footprint would be located directly adjacent to the northbound interior lane of the I-15 freeway. The rail alignment in the Mountain Pass area would no longer involve tunnels and would be elevated over the wash in the same locations as the I-15 freeway. Therefore, the previous effects related to tunnels causing direct mortalities and the rail alignment creating a movement barrier to bighorn sheep have been substantially reduced or eliminated. Based on the DRECP habitat suitability model, the modified Project 2022 footprint (Mainline) would permanently convert 29 acres and temporarily affect 128 acres of desert bighorn sheep habitat. Within BLM-administered public lands, the modified Project 2022 footprint (Mainline) would permanently convert 11 acres and temporarily affect 66 acres of desert bighorn sheep habitat. Overall, effects on bighorn sheep from the modified Project 2022 footprint (Mainline) would be reduced from the effects described in Section 3.14.2.3 of the DesertXpress DEIS, as a greater portion of the Project would occur within the I-15 median instead of adjacent to the highway. Mitigation Measures BIO-1 (worker education program), BIO-2 (pre-construction surveys and fencing), BIO-3 (monitoring), BIO5 (confine equipment), and BIO-19 (wildlife crossings) would be implemented to minimize or avoid direct effects on desert bighorn sheep.

Southwestern Willow Flycatcher, Least Bell's Vireo, and Western Yellow-Billed Cuckoo

The Project modifications would not encounter suitable habitat for southern willow flycatcher, least Bell's vireo, or western yellow-billed cuckoo.

Wildlife Movement

The effects related to construction and operational activities on wildlife movement, as described in Section 3.14.2.3 of the DesertXpress DEIS, still apply to the modified Project 2022 footprint, though with lower potential for impacts to wildlife movement due to being within or adjacent to the I-15 freeway corridor, which is itself an existing barrier to wildlife. The Sloan VMF is located adjacent to the I-15 freeway corridor and is unlikely to isolate individuals or fragment habitat. Habitat fragmentation or isolation as a result of the modified Project 2022 footprint is not anticipated. Existing culverts and wildlife crossing locations under the I-15 freeway corridor would remain in place. The implementation of Mitigation Measures BIO-3 (monitoring) and BIO-19 (exclusion fencing, culverts, and wildlife crossings) from the DesertXpress EIS, as well as minimization and mitigation measures outlined in the BO, would be implemented to reduce or mitigate adverse effects on wildlife movement.

7.2.6 Potential Effects on Special Management Lands

The effects related to construction and operational activities on Special Management Lands, as described in Section 3.14.2.3 of the DesertXpress EIS, still apply to the modified Project 2022 footprint, though in a greatly reduced capacity now that the modified Project footprint would primarily be within the I-15 freeway corridor. The modified Project 2022 footprint would affect three types of Special Management Lands: USFWS critical habitat, BLM-administered public lands and BLM ACECs. Table 7.2-3 and Table 7.2-4 show the permanent and temporary impacts from the DesertXpress EIS and the modified Project 2020 and 2022 footprints on Special Management Lands.

Although the modified Project 2022 footprint would intersect USFWS critical habitat and BLM ACECs, biological resource degradation has occurred in most areas where impacts would occur and no longer provide the habitat

or unique value for which the area was designated. Each of these Special Management Lands are bound by I-15 freeway on one side or are bisected by I-15 freeway. Most of the modified Project 2022 footprint is within the I-15 freeway ROW, which is relatively degraded and subject to trash, routine roadway maintenance, recreational OHV use, and shoulder disturbances from vehicles leaving the freeway.

Table 7.2-3 Comparison of Permanent Impacts on Special Management Lands (acres)

Special Management Lands	DesertXpress EIS (2011)	Modified Project (2020)	Modified Project (2022)			Sum of Modified Project Footprints
	Preferred Alternative		Removed Since the September 2020 Reevaluation	Added Since the September 2020 Reevaluation	Modified Project (2022)	
Desert Tortoise Critical Habitat	575.6	291.2	-4.0	22.7	18.7	309.9
Superior-Cronese ACEC	--	3.8	-3.9	7.6	3.7	7.5
Cronese Basin ACEC	3.6	1.9	--	--	0	1.9
Ivanpah ACEC	--	64.9	-11.7	111.6	99.9	164.8
Northern Lucerne Wildlife Linkage ACEC	--	8.5	-25.2	74.6	49.4	57.9
Shadow Valley ACEC	--	91.6	-0.1	5.8	5.7	97.3
Soda Mountains Expansion ACEC	--	110.3	--	2.3	2.3	112.6
Halloran Basin ACEC	--	--	--	0.5	0.5	0.5
NPS Mojave National Preserve	13.8	--	--	--	--	--
Total¹	593.0	572.2	-29.1	225.1	180.2	752.4

¹Totals generated prior to rounding and therefore may not add precisely.

Note: Five of these ACECs did not exist when the EIS was prepared in 2011.

Table 7.2-4 Comparison of Temporary Impacts on Special Management Lands (acres)

Special Management Lands	DesertXpress EIS (2011)	Modified Project (2020)	Modified Project (2022)			Sum of Modified Project Footprints
	Preferred Alternative		Removed Since the September 2020 Reevaluation	Added Since the September 2020 Reevaluation	Modified Project (2022)	
Desert Tortoise Critical Habitat	1,703	107.1	-1.8	241.6	239.8	346.9
Superior-Cronese ACEC	--	3.5	--	73.6	73.6	77.1
Cronese Basin ACEC	16.6	0.4	--	1.0	1	1.4
Ivanpah ACEC	--	194.9	-95	117.2	22.2	217.1
Northern Lucerne Wildlife Linkage ACEC	--	--	-1	37.8	36.8	36.8
Shadow Valley ACEC	--	30.8	-1.8	49.9	48.1	78.9

	DesertXpress EIS (2011)	Modified Project (2020)	Modified Project (2022)			Sum of Modified Project Footprints
	Preferred Alternative		Removed Since the September 2020 Reevaluation	Added Since the September 2020 Reevaluation	Modified Project (2022)	
Special Management Lands						
Soda Mountains Expansion ACEC	--	21.6	--	74.4	74.4	96
Halloran Basin ACEC	25.5	--	--	0.2	0.2	0.2
NPS Mojave National Preserve	59.9	--	--	--	0	0
Total¹	1,805.6	358.3	-99.6	595.7	496.1	854.4

¹Totals generated prior to rounding and therefore may not add precisely.

Note: Five of these ACECs did not exist when EIS was prepared in 2011.

Critical Habitat

Designated critical habitat for desert tortoise is present within the modified Project footprint; the impacts are described below. Based on modified Project construction and operation activities as well as the modified Project 2022 footprint occurring within the I-15 freeway median, the modified Project 2022 footprint is not expected to change the intended conversion purpose or inhibit the ability of the Primary Constituent's Elements (PCE) to be functionally established within the critical habitat. The Project modifications would not result in substantial changes in the evaluation of critical habitat impacts of the DesertXpress EIS.

Southwestern Willow Flycatcher Critical Habitat

The SCE Utility Corridor previously crossed the Mojave River in Victorville, which is designated as critical habitat for the southwestern willow flycatcher. This component is no longer a part of the modified Project; therefore, the Project would not affect Southwestern willow flycatcher critical habitat.

Areas of Critical Environmental Concern

Impacts on the Cronese Basin and Halloran Wash ACECs were evaluated in the DesertXpress EIS. In September 2016, the BLM issued the ROD for the DRECP, which added five new ACECs within the modified Project 2022 footprint (discussed below); therefore, impacts on these five ACECs were not previously evaluated in the DesertXpress EIS. They were, however, discussed and evaluated in the September 2020 Reevaluation. Chapter 4.2.6 provides a description of each ACEC and impacts associated with the modified Project 2022 footprint. Table 7.25 summarizes the impacts on BLM-administered public lands within ACECs and their associated disturbance caps by impact type, for the original, modified Project 2020 and 2022 footprints.

Table 7.2-5 Modified Project 2022 Footprint Impacts on Public Lands Administered by BLM within ACECs

ACEC	BLM Acres within ACEC	ACEC Disturbance Cap % (acres)	Modified Project (2020)		Modified Project (2022)			Sum of Modified Project Footprints	
			Perm. (acres)	Temp. (acres)	Removed Since the September 2020 Reevaluation	Perm. (acres)	Temp. (acres)	Perm. (acres)	Temp. (acres)
Cronese Basin	8,470	1% (85)	1.9	0.4	--	--	1.0	1.9	1.4
Halloran Wash	1,740	0.5% (9)	--	--	--	0.5	0.2	0.5	0.2
Superior-Cronese	330,670	0.5% (1,653)	3.8	3.5	--	1.8	17.9	5.6	21.4
Ivanpah	78,190	1% (781)	64.9	194.9	-11.7 / -95	111.6	106.0	164.8	205.9
Shadow Valley	197,530	0.5% (988)	91.6	30.8	-0.8	5.8	33.9	97.4	63.9
Northern Lucerne Wildlife Linkage	21,900	0.5% (110)	8.5	--	-9.7	16.9	19.8	15.7	19.8
Soda Mountains Expansion	16,720	1% (167)	110.3	21.6	--	1.9	44.0	112.2	65.6
Total	655,220	N/A	281.0	251.2	--	138.5	222.8	398.1	378.2

8.0 Mitigation Measures

8.1 Desert Tortoise-Specific Measures from the Biological Opinion

The Biological Opinion (BO) prepared in 2011 by the United States Fish and Wildlife Service (USFWS) for the Brightline West (formerly XpressWest and DesertXpress) High Speed Train Project (Project) stipulated conservation measures to avoid or reduce potential impacts on federally protected species. These conservation measures were incorporated as commitments for the Project, as documented in the Record of Decision (ROD) DesertXpress High-Speed Passenger Train (July 2011).

The federal lead agency conducting this Section 7 consultation is the FRA. The Bureau of Land Management (BLM) is considering separate authorizations for the Project under its land use plan. The BLM will take responsibility for overseeing the implementation of mitigation measures in compliance with Section 7(a)(2) of the Endangered Species Act as they relate to BLM managed lands. FRA will be responsible for overseeing compliance on lands other than BLM managed lands. The U.S. Army Corps of Engineers also requested that the FRA assume the lead for compliance with section 7(a)(2) of the Endangered Species Act.

Based on the modified action, the FRA proposed clarifications to the desert tortoise-specific protective measures codified in the ROD and based on the original BO.

Many of the original BO protective measures apply to desert tortoise ‘suitable habitat’. The FRA proposes the following definition for suitable habitat within the action area:

- The I-15 median is considered unsuitable habitat, except Mountain Pass.
- We will refer to portions of the action area within existing exclusion fences that contain tortoise habitat as unsuitable habitat. The premise here is that desert tortoises are no longer present in these areas because of earlier actions that have previously undergone section 7(a)(2) consultation.
- Portions of the action area that do not contain tortoise exclusion fencing are likely to be degraded habitat. These will be treated on a case-by-case basis during application of protective measures.
- We will refer to portions of the action area outside of existing exclusion fences that contain tortoise habitat as suitable habitat.
- An area will no longer be treated as suitable habitat after exclusion fencing has been installed, tortoise clearance survey has been conducted, and the transition of suitable habitat areas to unsuitable habitat has been determined by the authorized biologist.

For the purposes of defining biologist roles and responsibilities herein, an “authorized biologist” must be approved by the consulting federal agencies and USFWS and possess the skills and qualifications to implement the minimization measures pertaining to the desert tortoise. The authorized biologist has the authority to designate “desert tortoise monitors” for the Project, for the tasks that the authorized biologist deems they have sufficient training and experience.

8.1.1 Desert Tortoise Conservation Measures

General Project Conditions

Measure DT-1

Prior to the commencement of Project-related construction activities, the Applicant shall ensure all personnel working within the Project area attend an environmental awareness training program. The program will be prepared by biologists approved by the consulting federal agencies and USFWS and/or the “authorized biologist” and can be presented in-person or digitally (e.g. Microsoft PowerPoint or similar means). Temporary personnel (including delivery drivers, concrete truck drivers, mechanics/refueling trucks, port-a-toilet pump trucks, etc.) will not be required to attend the training program such that they are instructed by trained Project personnel not to operate or enter into areas designated as suitable desert tortoise habitat, defined above. Each person attending the training will be required to sign a training sheet, which will be kept on file in the Project trailer. The program will include information on the life history of the desert tortoise, the legal protection it is afforded by the Endangered Species Act, the definition of take for listed species, measures to protect the desert tortoise, reporting requirements, specific measures that each worker will need to employ to avoid adverse impacts on desert tortoises, a detailed description of environmental Project commitments (including those for the desert tortoise, as described in this document) as described in the decision records (i.e., Record Of Decision), ROW grants, and penalties for violation of federal and state environmental laws. All awareness presentations and materials will be in the first language of all workers.

Measure DT-2

The Applicant shall implement a litter-control program during construction. The program will include the use of covered, common raven-proof trash receptacles, daily removal of trash from work areas to the trash receptacles, and proper disposal of trash in a designated solid waste disposal facility. Precautions will also be taken to prevent trash from blowing out of construction vehicles.

To account for subsidies provided to ravens during the operational phase (food wastes, roosting and nesting sites, etc.), the Applicant shall pay into the Common Raven Management Fund, which is managed by the National Fish and Wildlife Foundation. This one-time payment of \$105 per acre for the Dale Evans Station permanent footprint will fund measures to control common ravens and their subsidies. The deposit form required by the National Fish and Wildlife Foundation is attached; the FRA must submit this form upon its approval of the proposed action.

Measure DT-3

The Applicant shall confine all construction activities to the designated work areas. Grubbing of vegetation will only be done to the extent necessary for construction and will be limited to areas designated for that. Overnight parking and storage of equipment and materials will be limited to areas of unsuitable habitat.

Measure DT-4

The Applicant shall restrict all vehicle traffic to existing paved roads and the Project alignment within the permanent or temporary construction areas. Disturbance beyond the construction area would be prohibited except in emergency situations.

Measure DT-5

The Applicant shall not allow speeds in excess of 15 miles per hour for Project-related vehicles on unpaved roads within suitable habitat. Project-related vehicles shall obey all posted speed limits while on paved roads.

Measure DT-6

The Applicant will promptly remove all dead animals larger than desert cottontails (*Sylvilagus audubonii*) within the Project construction area and within the operational train ROW to reduce the adverse effects associated with predation of desert tortoise by common ravens (*Corvus corax*). The removal area does not include the I-15 freeway automobile travel lanes.

Measure DT-7

The Applicant will not allow construction personnel to bring pets or firearms into the work area.

Desert Tortoise Protective Measures**Measure DT-8**

The Applicant shall ensure an authorized biologist will be on site during any Project activity (e.g., construction, restoration, maintenance, etc.) within or near suitable desert tortoise habitat to ensure the implementation and compliance of protective measures. Coordination of the location of desert tortoise monitors will be up to the discretion of the authorized biologist. If desert tortoises are discovered within the action area, the authorized biologist shall translocate the desert tortoise according to identified translocation strategy.

Measure DT-9

The Applicant will ensure the authorized biologists properly implement protective measures, record and report desert tortoise and sign observations in accordance with approved protocol, report incidents of noncompliance in accordance with the biological opinion and other relevant permits and authorizations and performs translocations according to identified translocation strategy.

Measure DT-10

To minimize adverse effects on the desert tortoise during the construction and operational phases, the Applicant shall install permanent or temporary desert tortoise exclusion fencing around Project features, where appropriate. The locations where exclusion fencing will be installed will be done in coordination between the authorized biologist, the USFWS, Caltrans, NDOT, and BLM. Long-term fence maintenance will be addressed in the Applicant's right of way agreements with both Caltrans and NDOT. The various ROW agreements will be provided to the USFWS.

Measure DT-11

Installation of the fencing will be monitored by an authorized biologist to ensure that desert tortoises are not killed or injured during this activity. After installation, the fencing will be inspected at the onset of each active season and after any rain that results in any kind of surface flow to ensure its integrity. The Applicant will ensure that cross-country travel for construction purposes outside of the areas of desert tortoise fencing is prohibited.

Measure DT-12

In areas where high vehicular construction traffic is expected (such as yards or stations), desert tortoise exclusionary fencing may require the supplemental use of a desert tortoise (cattle) guard. Locations of such guards will be determined by an authorized biologist. This device resembles a cattle guard and is positioned at ground level and connected to the exclusionary fencing to prohibit desert tortoise from crossing into the construction area but allowing the passage of construction vehicles. The guard would be maintained throughout its use during the construction phase by the Applicant. Such maintenance would require the presence of an authorized biologist. The guard would have a clear escape route away from construction activity for any desert tortoise that should fall into the guard. The guard would be inspected at the onset of each active season and after any rain that results in any kind of surface flow for desert tortoise and to ensure the escape route is free of obstruction. The guard would also be cleared of debris that may allow desert tortoise passage across the guard and into a construction area.

Measure DT-13

After installation of the permanent and temporary exclusionary desert tortoise fencing, the entire fenced area will be surveyed for desert tortoises by authorized biologists. Following the procedures and precautions outlined in the *Desert Tortoise Field Manual* or later guidance provided by the USFWS, all desert tortoise pallets and burrows within the survey areas will be examined and excavated by hand, either by or under the direct supervision of an authorized biologist, and collapsed to prevent re-entry.

Measure DT-14

The Applicant shall ensure an authorized biologist will be present during all initial topsoil removal, blading, or grading activities within suitable habitat in the Project area. During Project implementation, the Applicant shall ensure all workers will inform the authorized biologist or desert tortoise monitor if a desert tortoise is found within or near Project areas. All work in the vicinity of the desert tortoise will cease and it will be observed until it is moved from harm's way by the authorized biologist.

Measure DT-15

The Applicant shall ensure only biologists authorized by the USFWS will handle desert tortoises and follow the guidelines within the *Desert Tortoise Field Manual* or later guidance provided by the USFWS. Desert tortoises found within the Project area will be translocated to undisturbed suitable habitat beyond the construction site.

When lands managed by the BLM, non-governmental organizations, or other conservation organizations are available, the tortoise would be moved the shortest possible distance. Given the low likelihood of encountering a desert tortoise within the construction area and overall linear distance of action, a desert tortoise translocation plan was determined to not be practical under this BO. Rather, a strategy for translocation will be developed and agreed upon by the Applicant, USFWS, and BLM prior to beginning construction in each of the Project's six segments. The BLM would be responsible for performing any requirements to ensure NEPA compliance associated with the translocation of desert tortoises to its lands. In general, the strategy would consist of the authorized biologist performing a visual health assessment as described in USFWS (2019) and then notifying the USFWS and BLM. While a suitable translocation area is being coordinated, the authorized biologist would temporarily hold the tortoise in captivity in a secure, climate-controlled location.

The authorized biologist or desert tortoise monitor will move desert tortoises that are in harm's way to suitable habitat no more than 300 feet from the edge of the right-of-way. The authorized biologist or desert tortoise monitor will move desert tortoises to the same side of the right-of-way on which they were found; if moving the desert tortoise to the same side of the right-of-way would place it close to a paved road, the authorized biologist or desert tortoise monitor will place it on the opposite side of the right-of-way. The authorized biologist or desert tortoise monitor will release desert tortoises at unoccupied shelter sites; shelters include unoccupied soil burrows, spaces within rock outcrops, caliche caves, and the shade of shrubs.

Releases will occur only when temperatures range from 18–30°C (65–85°F) and are not forecasted to exceed 32°C (90°F) within 3 hours of release. Additionally, forecasted daily low temperatures should not be cooler than 10°C (50°F) (Service 2020).

If the Applicant needs to move desert tortoises from harm's way during times of the year when temperatures are likely to be unfavorable for extended times, it will coordinate with the Service to adaptively manage specific circumstances

The Applicant will allow any desert tortoise that it moves from harm's way to rehydrate. To rehydrate desert tortoises, the Applicant will maintain approved biosecurity protocols, which include but are not limited to avoiding cross-contamination of supplies and of desert tortoises, and to properly disinfecting all sampling gear (Service 2019). The Applicant will rehydrate the desert tortoise in a clean, biosecure container, for a minimum of 20 minutes in a quiet protected area, in water level that is no higher than the lower jaw of the animal, and in lukewarm water.

Measure DT-16

While working in suitable habitat, workers will inspect for desert tortoises under vehicles and equipment before such equipment is moved. If a desert tortoise is present, the worker will wait for it to move out from underneath the vehicle or the authorized biologist will be contacted to remove it.

Measure DT-17

The Applicant shall ensure the authorized biologists and desert tortoise monitors have the authority to stop work if dangers to desert tortoises arise, and to allow work to proceed after the hazard or desert tortoise has been removed. The Applicant shall notify the Southern Nevada and Palm Springs Fish and Wildlife Offices and BLM Offices of any desert tortoise injury or death. The authorized biologist will attempt to ascertain the cause of death or injury and note whether it resulted from Project-related activities. Only Project-related activities apply against the incidental take statement.

Measure DT-18

The Applicant will replace any previously installed permanent desert tortoise exclusionary fencing along I-15 removed during Project construction. There may be instances where fencing is no longer necessary based on changed conditions since the fencing was installed. These circumstances will be determined on a case-by-case basis.

Habitat Restoration and Erosion Control

The Applicant shall implement all appropriate protective measures for the desert tortoise during restoration work.

The Applicant shall restore temporarily impacted areas appropriately with regard to land ownership and designated land management.

- The Applicant shall restore all BLM lands according to specifications provided by the BLM.
- For non-BLM lands, the Applicant will restore lands as requested by the landowner.
- For non-BLM lands within conservation areas where the landowner does not specify restoration goals, the Applicant will restore lands to the same specifications provided by the BLM for its adjacent lands.
- For non-BLM lands outside of conservation areas where the landowner does not specify restoration goals, the Applicant will restore lands to stabilize substrates to the appropriate standards.

Measure DT-19

The Applicant shall install and maintain rice wattles, straw wattles, or silt fencing according to the Project's Stormwater Pollution Prevention Plan (SWPPP) to prevent sediment from being transported off of the ROW during construction. The Applicant shall employ permanent stabilization measures upon completion of construction along washes and in other areas of potential erosion according to the SWPPP. These measures may include, but are not limited to, the use of geo-textile mats or rip-rap in areas of high erosion potential (erosion control devices). The rip-rap shall be designed to be compatible for use within desert tortoise habitat. That is, the Applicant shall install riprap that does not have gaps that can trap desert tortoises of any size. To minimize the extent to which a desert tortoise individual can become heat-stressed as a result of fence walking, the installation of silt fencing along desert tortoise exclusion fencing should only be used when necessary. If desert tortoises are later observed traveling along the silt fence, the Applicant shall install shade structures every 1,000 feet along the silt fencing.

Measure DT-20

The Applicant shall use culverts that will not entrap desert tortoises or block their passage. Specifically, all erosion control devices must be constructed and maintained in a manner that allows desert tortoises to enter and leave them freely.

Desert Tortoise Habitat Compensation**Measure DT-21**

In addition to habitat restoration, in Nevada, the Applicant will compensate for habitat disturbance through payment of a per-acre fee for disturbance of desert tortoise habitat. For disturbance on BLM lands in Nevada, land remuneration fees will be used for management actions expected to promote recovery of the desert tortoise over time, including management and recovery of desert tortoise in Nevada. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species status and trend, and preserving distinct population attributes. Fees will be used to fund the highest priority recovery actions for desert tortoises in Nevada. The

current rate is \$936 per acre of disturbance, as indexed for inflation, effective March 1, 2021. The next adjustment will become effective March 1, 2022. The fee rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year, becoming effective March 1st. Fees assessed or collected for projects covered under the biological opinion and consultation for southern Nevada will be adjusted based on the current CPI-U for the year they are collected. Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>.

For disturbance on lands in Nevada not managed by BLM, the Applicant will submit fees as described in the attached Southern Nevada Mitigation and Conservation Account, Mojave Desert Tortoise Sub-Account Deposit Document. See attached.

In California, for disturbance of BLM lands, the applicant will compensate in accordance with the Desert Renewable Energy Conservation Plan. LUPA-BIO-Comp 1 of the Desert Renewable Energy Conservation Plan states that:

Impacts on biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-COMP-2 through -4, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization. Compensation for the impacts on designated desert tortoise critical habitat will be in the same critical habitat unit as the impact. Compensation for impacts on desert tortoise will be in the same recovery unit as the impact.

BLM will determine the appropriate amount of compensation in its rights-of-way grant to the Applicant.

The Applicant will compensate for impacts on desert tortoise habitat on non-BLM lands in California by installing desert tortoise exclusion fencing along unfenced portions of Interstate 15 within desert tortoise critical habitat. Specifically, the Applicant will install exclusion fencing along the north side of Interstate 15 from approximately post mile 77.9 to post mile 78.9 (between Old Highway 58 and Ft. Irwin Road) and from approximately post mile 111.6 to post mile 115.3 (north of Afton Canyon Road). This fencing would connect with the exclusion fencing that the Applicant would install to the east and west of these post miles where construction work would occur outside of the median.

Terms and Conditions of the Biological Opinion Specific to Desert Tortoise

Measure DT-22

To ensure that the measures proposed by the FRA are effective and are being properly implemented, the Applicant must contact the USFWS immediately if it becomes aware that a desert tortoise has been killed or injured by Project activities. At that time, the Applicant must review the circumstances surrounding the incident with the USFWS to determine whether additional protective measures are required. Project activities may continue during the review, provided that the proposed protective measures in the Project description and any appropriate terms and conditions of this biological opinion have been and continue to be fully implemented.

If five desert tortoises are injured or killed as a result of construction of the Project, the FRA shall re-initiate consultation on the Project pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16.

Measure DT-23

If two desert tortoises are injured or killed as a result of operation and maintenance of the Project in any calendar year, FRA shall re-initiate consultation on the Project, pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16.

Measure DT-24

During construction, the Applicant shall monitor the integrity of all desert tortoise exclusion fencing installed by the Applicant and/or where it is their responsibility to do so, at the onset of each active season and after any rain that results in any kind of surface flow. The frequency of inspections during the operational phase will be defined in the ROW agreements between the Applicant and responsible agency (Caltrans, NDOT, BLM, etc.). The various ROW agreements will be provided to the USFWS in order for them to be aware of the responsible parties for long-term maintenance and inspections.

Measure DT-25

The Applicant shall ensure authorized biologists survey areas that could become isolated from the main body of habitat where the alignment deviates slightly from the freeway (e.g., at off-ramps). If desert tortoises are present and construction of the Project may disrupt their behavior or if a culvert or other access to the main body of habitat does not exist or will not be provided, the authorized biologist must translocate them to the side of the rail line that is adjacent to the main body of habitat. In any event of uncertainty, the authorized biologist must contact the USFWS for guidance prior to moving the desert tortoise; during this time, the authorized biologist may install fencing around the area of the desert tortoise's burrow so he or she may find it again.

Measure DT-26

The Applicant shall design all new structures associated with the Project in a manner that will reduce the likelihood of nesting and perching by common ravens. The Applicant, as appropriate, must monitor these structures to ensure the effectiveness of their measures and implement adaptive management, in coordination with the USFWS, if the initial measures are unsuccessful. The Applicant must ensure that any common raven nests established on new structures are removed within one year at a time when they are inactive.

Measure DT-27

By January 31 of any year the proposed action is under construction and during its operation, the FRA must provide a report to the USFWS that provides details on the effects of the action on the desert tortoise. Within 60 days of the completion of the proposed action, the FRA must provide a summary report that provides, in addition to the following information, a complete overview of the amount of habitat disturbed and the number of desert tortoises that were taken. These reports shall include information on any instances when desert tortoises were killed, injured, or handled, the circumstances of such incidents, and any actions undertaken to prevent similar instances from re-occurring. In addition, the reports should include any recommendations that would facilitate the implementation of the protective measures while maintaining protection of the desert tortoise and the names of any monitors who assisted the authorized biologist and an evaluation of the experience they gained on the Project.

Measure DT-28

Within 24 hours of locating any dead or injured desert tortoises, the Applicant shall notify the USFWS by telephone and by electronic mail. For desert tortoises in Nevada, call (720) 515-5230; for California, call (760) 322-2070. The report must include the date, time, and location of the carcass, a photograph, presumed cause

of death, if known, and any other pertinent information. If an injured desert tortoise is discovered in the Project area, the authorized biologist will immediately take it to the nearest wildlife rehabilitation or veterinary clinic approved by the USFWS. Prior to beginning construction in each of the Project's six segments, a list of approved veterinary clinics will be developed. Following phone notification, as required above, USFWS representatives will determine the final disposition of the injured tortoise.

Measure DT-29

The Applicant shall take care in handling dead desert tortoises to preserve biological material in the best possible state for later analysis. If desert tortoises are killed by Project activities, the USFWS will instruct the Applicant regarding the final disposition of the carcass.

8.1.2 General Mitigation Measures from the DesertXpress EIS

Revisions to these General Mitigation Measures provided in the DesertXpress EIS are included with ~~strikeout~~ and underline.

Mitigation Measure BIO-1: Conduct Mandatory Environmental Awareness Training Program

Prior to the commencement of Project-related activities, The Applicant Brightline West shall ensure all personnel working within the Project area attend an environmental awareness training program. The program shall be presented by authorized biologists and include information on the life history of special-status species that may be encountered during construction activities, the legal protection for each species, the definition of "take" for listed species, measures to protect special-status species, reporting requirements, specific measures that each worker shall need to employ to avoid adverse effects to individual sensitive species, The program will be prepared by biologists approved by the USFWS and/or the "authorized biologist" and can be presented in person or digitally (i.e., Microsoft PowerPoint or similar means). Temporary personnel (including delivery drivers, concrete truck drivers, mechanics/refueling truck drivers, port-a-toilet pump truck drivers, etc.) will not be required to attend the training program such that they are instructed by trained Project personnel not to operate or enter into areas designated as desert tortoise habitat, defined below. Each person attending the training will be required to sign a training sheet, which will be kept on file in the Project trailer. The program will include information on the life history of the desert tortoise; the legal protection it is afforded by the Endangered Species Act; the definition of take for listed species; measures to protect the desert tortoise; reporting requirements; specific measures that each worker will need to employ to avoid adverse impacts on desert tortoises; a detailed description of environmental Project commitments, as described in the decision records (i.e., Record of Decision), ROW grants, and biological opinion; and penalties for violation of federal and state environmental laws.

Mitigation Measure BIO-2: Conduct Preconstruction Surveys and Install Environmental Fencing

The Applicant Brightline West shall undertake preconstruction surveys for special-status species; these surveys shall be conducted by qualified biologists (i.e., one or more third party contractor(s) approved by the USFWS) prior to the start of construction. Preconstruction surveys shall be tailored for specific species based on the species biology, natural history, suitable habitat, and regulatory requirements. The locations for any individual or population of sensitive species within the limit of disturbance shall be documented with a GPS unit and reported to the state and federal regulatory agencies.

Mohave ground squirrel surveys are only valid for 12 months. Therefore, they shall be done no more than 12 months prior to the start of construction within suitable habitat in a particular area. If no Mohave ground squirrels are found during the surveys, no additional mitigation would be required.

Mojave fringe-toed lizard surveys shall occur no more than 24 hours prior to the start of construction. Surveys shall be conducted within suitable habitat within the work area and a 100-foot buffer. Any Mojave fringe-toed lizards observed in the work area shall be allowed to move out of the work area. Those that become trapped in the work area shall be captured and moved to nearby suitable habitat outside of the work area.

Qualified biologists shall conduct preconstruction surveys for banded Gila monsters no more than 24 hours prior to the start of construction within all suitable habitat in Segments 3 and 4. Surveys shall be conducted within suitable habitat within the work area and a 100-foot buffer. Any Gila monsters observed within the work areas shall be allowed to move out of the work area and those that become trapped within the work area shall be carefully moved to nearby suitable habitat by a qualified biologist. The handler shall have the applicable and necessary permit to handle and move lizards. Qualified biologists shall conduct preconstruction surveys for BLM-sensitive and Clark County Multiple-Species Habitat Conservation plan (HCP) covered reptile species no more than 48 hours prior to the start of construction in areas of suitable habitat. Surveys shall be conducted within the work area and include a 100-foot buffer. Any sensitive reptile species observed within the work areas shall be allowed to move out of the work area and those that become trapped within the work area shall be very carefully moved to nearby suitable habitat by a qualified biologist.

~~The Applicant~~ Brightline West shall implement the following measures, to avoid disturbance of tree, shrub- or ground-nesting special-status and migratory birds and raptors:

- If construction activities are scheduled to occur during the breeding season (generally between February 15~~March 1~~ and September 1~~August 15~~), a qualified wildlife biologist shall conduct focused nesting surveys within the appropriate habitat and an appropriate buffer distance up to 0.25 mile from the limit of Project disturbance for nesting raptors.
- The focused surveys shall include tree- and shrub-nesting birds, ground-nesting birds, and cliff-nesting birds. The surveys shall be conducted within the two-week period before initiation of construction activities in a particular area between February 15~~March 1~~ and September 1~~August 15~~. If no active nests are detected, then no additional mitigation would be required.
- Follow-up surveys shall be required on a monthly basis during the breeding season. If surveys indicate that active nests are present in any areas that would be directly affected by construction activities, a no-disturbance buffer would be established around the site to avoid disturbance or destruction of the nest site until after a wildlife biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers shall be determined by a wildlife biologist in consultation with the CDFW in California and the NDOW in Nevada and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors shall be analyzed to make an appropriate decision on buffer distances.

A qualified biologist shall conduct preconstruction surveys for active burrows according to the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). ~~guidelines for burrowing owl (1993 and 1995)~~. The preconstruction surveys shall be conducted by a qualified biologist 14 days and 24 hours before initiation of construction activities to locate active burrowing owl burrows within the work area and include a 250-foot buffer ~~and within the 2-week period before initiation of construction activities to locate active burrowing owl burrows~~. ~~The preconstruction surveys shall include a nesting season survey and a wintering season survey the season immediately preceding construction.~~ If no burrowing owls are detected, no further mitigation would be required.

Focused surveys for the presence of sensitive bat species shall be conducted in areas that provide suitable roosting or nursery habitat including trees, rock outcrops, and bridges. If a roosting site is active and cannot be avoided, ~~the Applicant Brightline West~~ shall consult with a bat expert in conjunction with the CDFW in California and the NDOW in Nevada to develop appropriate exclusion methods. If it is determined that a nursery sites is active and cannot be avoided, construction activities that would disturb the nursing bats shall be delayed until the breeding cycles for the bats are completed. ~~The Applicant DesertXpress Enterprises, LLC,~~ shall consult with a bat specialist in order to determine the breeding cycle for bats. ~~The Applicant Brightline~~ shall document the results of any exclusion or avoidance of roosting/nursery sites for bats.

Qualified biologists shall conduct preconstruction surveys for American badger no more than 48 hours prior to the start of construction. Surveys shall be conducted within the work area and a 100-foot buffer. Any American badgers observed in the work area shall be allowed to leave the work area.

Construction activities conducted within suitable desert bighorn sheep habitat in the Mountain Pass area of the Project shall not occur during the period of the year when desert bighorn sheep are lambing (from January 1 to April 30). If construction activities must occur during the desert bighorn sheep lambing period, preconstruction surveys for lambing desert bighorn sheep shall be conducted prior to construction. If lambing desert bighorn sheep are found, then ~~the Applicant Brightline~~ shall consult with the BLM and the CDFW to identify appropriate avoidance measures.

Qualified botanists shall conduct preconstruction surveys for sensitive botanical species and invasive, non-native weed species prior to initiating construction of the Project. If sensitive botanical species are observed within the temporary construction area of effect, avoidance and minimization measures shall be applied by ~~the Applicant Brightline~~.

Temporary environmental fencing shall be installed around sensitive biological and botanical resources prior to the commencement of on-site Project construction in order to avoid unnecessary adverse effects to the resource. These areas shall be signed for avoidance by construction equipment and personnel. USFWS- and BLM-approved desert tortoise exclusionary fencing shall be erected under supervision by an authorized biologist within portions of the Project that occur in desert tortoise habitat. Temporary desert tortoise fencing shall be installed in areas of construction that are beyond the perimeter of the right-of-way or in areas where construction staging would occur. This includes fencing all work areas, temporary equipment and vehicle yards, and material staging and storage areas, as defined in the biological opinion. Desert tortoise exclusionary fencing and clearance surveys shall be undertaken no more than 10 days prior to initiating construction activities. After installation of the temporary fencing, the entire Project area shall be surveyed for desert tortoises by an authorized biologist. Following the procedures and precautions outlined in the Desert Tortoise Council's guidelines, all desert tortoise pallets and burrows within the survey areas shall be examined and excavated by hand, either by or under the direct supervision of an authorized biologist, and unoccupied features collapsed to prevent re-entry. After installation, the fence shall be regularly inspected to ensure its integrity. Desert tortoise encountered during preconstruction surveys shall be relocated off the Project based on a USFWS and BLM approved Project-specific Desert Tortoise Relocation Plan. At a minimum, the Desert Tortoise Relocation Plan shall require the desert tortoises found within the Project area be removed to undisturbed areas beyond the construction site and relocated within their own territory where they may be familiar with alternate burrows. If no natural burrows are available, artificial burrows shall be created following the Desert Tortoise Council's guidelines. Only biologists authorized by the USFWS shall handle desert tortoises and shall follow the guidelines established by the Desert Tortoise Council.

~~The Applicant Brightline~~ shall install and maintain permanent exclusionary fencing along the open portion of the rail alignment in areas of suitable bighorn sheep habitat. The fencing shall be constructed to ensure that bighorn sheep cannot access the rails-rail corridor, ~~or any culverts/tunnels~~. ~~In addition, prior to initiating construction, temporary exclusionary fencing shall be placed around all sensitive botanical species that occur~~

within the temporary construction areas. These areas shall be signed for avoidance by construction equipment and personnel.

Mitigation Measure BIO-3: Conduct Construction Monitoring

The Applicant Brightline shall implement the following measures during Project construction:

- Qualified biologists shall be on site during any construction activity within or near special-status species habitat to ensure the implementation and compliance of environmental commitments and avoidance measures.
- The qualified biologist shall have the authority to stop work if dangers to desert tortoises or other special-status wildlife species arise and allow work to proceed after the hazard has been removed. The USFWS Southern Nevada and Ventura Ecological Services Offices, BLM Field Offices and the CDFW must be notified of any desert tortoise injury or death resulting from Project-related activities. In addition, the USFWS Division of Law Enforcement shall also be notified in accordance with reporting requirements. As part of the monitoring, the biologists shall check construction areas immediately before construction activities each day to ensure that no special-status wildlife species have moved into the construction area. If tortoises are discovered within the construction area, they shall be relocated by an authorized biologist based on the Desert Tortoise Relocation Plan.
- All construction activities shall be confined to the designated work areas. Grubbing of vegetation shall only be to the extent necessary for construction and shall be limited to areas designated for that. An authorized qualified biologist(s) shall be present during all initial brushing or grading activities within the Project area. Overnight parking and storage of equipment and materials would be limited to previously disturbed areas or areas identified in the BLM right-of-way grant.
- All vehicle traffic shall be restricted to existing roads or land management agency approved newly constructed roads. The Applicant Brightline shall ensure that cross-country travel for construction purposes outside of the areas of desert tortoise fencing is prohibited.
- Construction vehicles within sensitive species habitat shall not exceed 15 miles per hour.
- A litter-control program shall be implemented during construction. The program shall include the use of covered, raven-proof trash receptacles, daily removal of trash from work areas to the trash receptacles, and proper disposal of trash in a designated solid waste disposal facility. Precautions shall also be taken to prevent trash from blowing out of construction vehicles.
- No pets or firearms shall be permitted in the work area.
- Both pre- and post-construction photographs shall be taken to document sensitive habitat conditions within the limits of Project disturbance.
- Trenches and holes shall be completely and securely covered by the end of the workday. If the hole or trench is too large to be covered, then wildlife escape ramps shall be built such that any entrapped wildlife can escape on their own. Prior to the start of work on the next day, the approved biologist shall inspect any holes and trenches that have been covered or ramped to determine if wildlife have fallen in overnight. If non-listed wildlife is discovered within the hole or trench, the approved biologist will remove and relocate the individual out of the Project limits. If a listed species is discovered within a hole or trench, Brightline will allow the animal to escape out of harm's way. If the animal is not able to escape on its own, Brightline shall stop work within the immediate vicinity and notify the appropriate resources agency before construction proceeds.

Mitigation Measure BIO-4: Avoid the Dispersal of Invasive, Non-Native Weed Species into Uninfested Areas

To avoid the introduction or spread of invasive, non-native weed species into uninfested areas, ~~the Applicant~~ Brightline shall incorporate the following measures into the Project plans and specifications:

- Use only certified, weed-free, imported erosion-control materials (or rice straw in upland areas).
- Coordinate with BLM field offices ~~and the NPS~~ to ensure that the appropriate best management practices (BMPs) are implemented.
- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of invasive, non-native weed species.
- ~~Clean equipment at designated wash stations before and after entering the Project construction area.~~ Equipment shall be cleaned prior to entry to the Project site and upon demobilization.
- An invasive, non-native weed species survey of the Project right-of-way, including temporary work areas, shall be completed prior to initiating Project construction. All areas disturbed by the Project shall be surveyed using approximately 30-foot meandering transects. Populations of invasive, non-native weed species shall be identified and mapped using global positioning systems (GPS).
- Develop an approved Invasive Weed Species Monitoring and Treatment Plan to detect and treat any noxious invasive, non-native weed species in the construction area. The plan shall include methods for monitoring, treating and reporting invasive, non-native weed species infestations within the construction area. The Invasive Weed Species Monitoring and Treatment Plan shall be drafted and submitted to the BLM prior to initiating construction as part of the BLM ROW grant requirements.

Mitigation Measure BIO-5: Confine Construction Equipment to a Designated Work Zone (Including Access Roads) at Each Project Site

~~The Applicant~~ Brightline shall clearly stake and flag the work zone prior to construction within areas of suitable habitat. During the environmental training program, construction personnel shall be informed about the importance of avoiding ground-disturbing activities outside the designated work area. During construction, the construction monitors and resource monitors shall ensure that construction equipment and associated activities avoid any disturbance of native vegetation and sensitive resources outside the designated work zones. Contaminant run-off shall be contained within the temporary construction boundaries and clean-up efforts shall be initiated immediately. Clean-up procedures shall be coordinated with the responsible agency to ensure additional resource damage does not occur.

Mitigation Measure BIO-6: Reestablish Preconstruction Site Conditions to Allow Revegetation

~~The Applicant~~ Brightline shall restore disturbed areas of native vegetation to preconstruction site conditions. To ensure that effects on native plant species and communities are not long-term, ~~the Applicant~~ Brightline shall stockpile and immediately replace native topsoil within the Project right-of-way, and reestablish natural site topography (including necessary amendments to soil structure) to allow natural colonization of plant species.

In both California and Nevada, ~~the Applicant~~ Brightline shall relocate all succulents within the limits of disturbance to undeveloped BLM-administered public lands or maintain them within a temporary nursery (located within the right-of-way) and replant within the ROW as part of site restoration activities.

In areas that require immediate stabilization, non-vegetative techniques that allow native species to reestablish can be used, including use of weed- and disease-free mulch, erosion blankets, or rolled organic fiber material.

Erosion control seed mixes may be necessary on selected sites. If sites need to be stabilized through seeding, the seed mix would be composed entirely of native and locally occurring species appropriate for stabilizing local site conditions. All seed mixes shall be approved by the BLM, ~~NPS~~, NDOT and Caltrans prior to initiating restoration activities. Special attention shall be given to erosion control near ephemeral drainages and within playas. ~~The Applicant~~ Brightline shall determine site-specific erosion control measures (non-vegetation or mechanical techniques) in consultation with a vegetation specialist and Project engineer.

Mitigation Measure BIO-7: Retain and Stockpile Topsoil

~~The Applicant~~ Brightline shall remove native topsoil from areas of permanent disturbance outside of the Interstate 15 freeway ROW and stockpile within the Interstate 15 freeway ROW ~~right-of-way~~. To avoid altering local hydrologic conditions or flood flows, spoils materials shall not be placed in sensitive habitat areas or within or adjacent to ephemeral drainages. Prior to disturbance, native topsoil shall be excavated and stockpiled for later reapplication in native vegetation areas. Separate stockpiling areas shall be identified and clearly marked for each different vegetation type as appropriate. The exact depths shall be determined for each native vegetation type and depend upon the stratigraphy and soil profiles (estimated to be 6-12 inches in depth). The excavated soil depths shall exceed the restored soil depths to allow for soil compaction during placement. The stockpiled soil shall not be covered to minimize damage to propagation material from heated soil conditions but it shall be protected from construction activity and signed to identify it as a protected resource.

Mitigation Measure BIO-8: Restore Natural Site Topography

~~The Applicant~~ Brightline shall be responsible for restoring the natural site topography of temporarily disturbed areas to pre-Project contours. The restored topography shall mimic the pre-Project condition to the greatest extent possible. Minor modifications may be required to conform with post-Project site condition. Construction area soil compaction shall be treated using grubbing, raking, and other BLM-approved soil decompaction techniques as part of the Project restoration. Proper compaction of the subsurface material and plow furrows is necessary to help prevent surface and subsurface migration of water along the plow or trench furrow, and to prevent trench settlement. The reapplied topsoil in the ~~right-of-way~~ temporary disturbance areas outside of the ROW shall be left in roughened condition to facilitate the establishment of vegetation and reduce the potential for erosion. Excessive passes of finish grading equipment that would compact topsoil shall be avoided. Upon completion of the grading operations, no further vehicular traffic shall be allowed, other than necessary mitigation planting equipment.

Mitigation Measure BIO-9: Implement Erosion Control Measures as Appropriate

~~The Applicant~~ Brightline shall prepare and implement an erosion control and restoration plan to control short-term and long-term erosion and sedimentation effects and to restore soils and native vegetation in areas temporarily affected by construction activities. The plan shall include requirements of applicable erosion control ordinances and grading permits and shall implement BMPs for erosion and sediment control as necessary. The erosion control plan shall be drafted and submitted to the BLM prior to initiating construction as part of the BLM ROW grant requirements.

In areas that require immediate stabilization, non-vegetative techniques that allow native species to reestablish can be used, including use of weed- and disease-free mulch, erosion blankets, or rolled organic fiber material. The use of such measures shall be identified in the Stormwater Pollution and Prevention Plan (SWPPP) for the Project or recommended by a soil or civil engineer based on slope, soil type, or other site factors as necessary and may be required later in the design phase.

Mitigation Measure BIO-10: Obtain a Tree or Plant Removal Permit from San Bernardino County and the Nevada Division of Forestry

The Applicant Brightline shall obtain a Tree or Plant Removal Permit from San Bernardino County and the Nevada Division of Forestry. This permit is issued in compliance with San Bernardino County Development Code Subsection 88.01.050 for removal of regulated plants. ~~The Applicant~~ Brightline shall comply with all provisions of the Permit. A permit shall be required from the Nevada Division of Forestry and/or the BLM in order to relocate succulents within the Project alignment. ~~The Applicant~~ Brightline shall also comply with the California Desert Native Desert Plants Act, consistent with pertinent BLM regulations.

Mitigation Measure BIO-11: Compensate for the Loss of Sensitive Vegetation Communities

~~The Applicant~~ Brightline shall compensate for the loss of Sensitive Vegetation Communities prior to initiating construction. Compensation ratios shall be based on site-specific information and determined through coordination with state and federal agencies (Caltrans, NDOT, the United States Army Corps of Engineers (USACE) and the BLM). This site-specific information will supplement the executed studies for the Project, ~~including the 2010 botanical survey in California near Mountain Pass investigating the area where Segment 4C, if constructed, would be located.~~ Compensation should be provided at a minimum 1:1 ratio (1 acre restored or created for every 1 acre removed/disturbed) and may be a combination of onsite restoration/creation, offsite restoration, or mitigation credits. ~~The Applicant~~ Brightline shall develop and implement a restoration and monitoring plan that describes enhancement of sensitive communities, creation, and monitoring over a select time period.

Mitigation Measure BIO-12: Conduct Preconstruction Surveys and Identify Sensitive Areas

~~The Applicant~~ Brightline shall mark specific areas of important riparian vegetation with orange fencing and the limits of disturbance narrowed to reduce effects to sensitive vegetation ~~where the rail alignment crosses the Mojave River in the Mountain Pass area.~~

Mitigation Measure BIO-13: Avoid Known Special-Status Plant Populations during Project Design

To the extent possible, ~~the Applicant~~ Brightline shall design the Project to avoid special-status plant populations, updating design-build Project plans accordingly. ~~The Applicant~~ Brightline shall comply with the minimum survey and mitigation standards as required by BLM Manual 6840-1. Where avoidance is infeasible, ~~the Applicant~~ Brightline shall focus on minimizing the width of construction work areas in and around special-status plant populations. Before construction, special-status plant populations shall be demarcated with temporary orange construction fencing and posted as a restricted area. Depending on the proximity of the populations to the construction work area, populations shall be monitored to ensure adverse effects on special-status plant populations are avoided. If effects on special-status plant populations are unavoidable, ~~the Applicant~~ Brightline shall implement Mitigation Measure BIO-14.

Mitigation Measure BIO-14: Compensate for Adverse Effects on Special-Status Plant Populations

If effects on a special-status plant population are unavoidable, ~~the Applicant~~ Brightline shall coordinate with the USFWS to determine the appropriate mitigation strategy. If affected plants are listed under the federal ESA, the appropriate take permits would be obtained from USFWS. Currently accepted mitigation of effects on special-status plants includes acquisition and preservation of nearby occupied habitat, or habitat creation at a ratio determined by the regulatory agency. Transplantation of affected populations is not considered a viable mitigation option. Creation of habitats with high levels of endemism, such as vernal pools, is effective only with stringent agency management guidelines. ~~The Applicant~~ Brightline shall coordinate with the USFWS to develop an effective mitigation and monitoring plan for specific ~~vernal pool~~ plants in conjunction

with the construction of compensatory vernal pool habitat. Alternatively, ~~the Applicant~~ Brightline could acquire and preserve nearby high-quality occupied habitat, with ~~the Applicant~~ Brightline responsible for the long-term habitat management.

Mitigation Measure BIO-15: Prepare a Desert Tortoise Relocation Plan

~~The Applicant~~ Brightline shall develop a Desert Tortoise Relocation Plan in conjunction with USFWS Southern Nevada and Ventura Ecological Services Offices and the BLM, ~~the NPS~~. The relocation plan shall outline procedures and protocols to follow when tortoises need to be relocated out of the areas of disturbance. The relocation plans shall include:

- Clearance procedures for construction areas;
- Relocation procedures;
- Procedures for determining the health of tortoises;
- Relocation areas;
- Methods that shall be used to manage and protect relocation areas;
- Monitoring for short-and long-term success of the plan; and
- Permitted activities.

Mitigation Measure BIO-16: Prepare Final Mitigation Monitoring Report

~~The Applicant~~ Brightline shall ensure that no more than 90 days after the completion of construction, the monitoring biologists prepare a report for USFWS, the BLM, and appropriate state agencies. The report shall include the effectiveness of mitigation measures, the results of preconstruction and construction monitoring including the number of desert tortoises excavated and moved.

Mitigation Measure BIO-17: Implement Mitigation Measures Outlined by the Regional USFWS Ecological Services Office to Protect Desert Tortoises

~~The Applicant~~ Brightline, in accordance with USFWS guidance, shall pay mitigation fees for disturbance to desert tortoise habitat on BLM administered public lands in Nevada.

Mitigation Measure BIO-18: Compensate for the Permanent Loss of Desert Tortoise Habitat

~~The Applicant~~ Brightline shall provide compensation for the permanent loss of desert tortoise habitat. Compensation for loss of habitat in California shall be provided by ~~the Applicant~~ Brightline according to requirements of the BLM and USFWS. Current requirements for loss of desert tortoise habitat are based on a formula of 5:1 ~~inside Desert Wildlife Management Areas (DWMAs)~~ inside desert tortoise designated critical habitat and 1:1 outside of ~~desert tortoise DWMAs~~ desert tortoise designated critical habitat. For the purposes of the Project, changes to the compensation formula must be reviewed and approved by the USFWS and ~~the NPS, BLM~~.

For Project-related loss of habitat in Nevada, ~~the Applicant~~ Brightline shall follow the mitigation measures outlined by the Regional USFWS Ecological Office for the protection of desert tortoises.

Mitigation Measure BIO-19: Construct Exclusion Fencing, Culverts, and Wildlife Crossings

~~The Applicant~~ Brightline shall install culverts under the proposed railroad line that match existing I-15 or Union Pacific Railroad (UPRR) culverts. ~~Where the Project deviates from existing transportation facilities, the Applicant shall install culverts adequately designed to serve as wildlife crossings at natural drainage features and at appropriate intervals to allow for wildlife passage, including, but not limited to, desert tortoises and other wildlife~~

~~to pass under the proposed rail alignment. The Project design shall mimic existing conditions (in-line piers, height, and width) to ensure flow for natural drainages equal to or greater than four feet in width (as measured by the distance between the ordinary high water mark on each side of the drainage) during Project construction or operation in order to reduce potential effects to wildlife movement, including, but not limited to, desert tortoise and desert bighorn sheep. The bridges, culverts and fencing would be designed and spacing determined through coordination with the USFWS, BLM, Caltrans, and NDOT the NPS, the BLM, the California Department of Fish and Game (CDFG), the Nevada Department of Wildlife (NDOW), and the United States Environmental Protection Agency (EPA) to ensure they meet agency wildlife standards. Where Exclusion fencing is installed, it would be designed in such a way to~~ would be constructed parallel to the rail line and would direct tortoises and other wildlife species to the culverts. Recommendations for wildlife crossings can be found in *Wildlife Crossing Structure Handbook Design and Evaluation in North America*,¹ *California Essential Habitat Connectivity Project*,² and *Areas of Conservation Emphasis*.³

Mitigation Measure BIO-20: Compensate for the Permanent Loss of Mohave Ground Squirrel Habitat

If Mohave ground squirrels are determined to be present in the Project area outside of the I-15 right-of-way, ~~the Applicant Brightline~~ shall mitigate for the permanent loss of suitable habitat. Acreage of suitable habitats outside of the I-15 right-of-way that could be permanently affected by the Project.

Mitigation Measure BIO-21: Avoid Active Burrows or Passively Relocate Owls

If burrowing owls are detected within 250 feet of proposed construction within the Project area, ~~the Applicant~~ shall implement the following measures:

- Occupied burrows shall not be disturbed during the nesting season (February 1 through August 31).
- If avoidance is the preferred method of dealing with potential effects, no disturbance shall occur within 160 feet of occupied burrows during the non-breeding season or within 250 feet during the breeding season.
- If destruction of occupied burrows is unavoidable during the non-nesting season (September 1–January 31), passive relocation techniques (e.g., installing one-way doors at burrow entrances) shall be used instead of trapping and active relocation. At least one week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows. Unsuitable burrows that will not be destroyed in the vicinity of the Project shall be enhanced.

¹ Federal Highways Administration. 2011. *Wildlife Crossing Structure Handbook Design and Evaluation in North America*. Chapter 4, Designs, Toolboxes, Guidelines, and Practical Applications. Prepared by Western Transportation Institute for Federal Highway Administration, 224 pages. March. Available: https://www.fhwa.dot.gov/clas/ctip/wildlife_crossing_structures/ch_4.aspx.

² Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

³ California Department of Fish and Wildlife. 2018. *Areas of Conservation Emphasis (ACE) Version 3.0 Model*. Available: <https://map.dfg.ca.gov/ace/>.

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